AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. CONTRACT ID CODE	PAGE OF PAGES
	1 | 1

2. AMENDMENT/MODIFICATION NO.	3. EFFECTIVE DATE	4. REQUISITION/PURCHASE REQ. NO.	5. PROJECT NO. *(If applicable)*
0001	11/29/01		

6. ISSUED BY CODE

JACKSONVILLE DISTRICT OFFICE
U.S. ARMY CORPS OF ENGINEERS
P.O. BOX 4970
JACKSONVILLE, FLORIDA 32232-0019
VICKI V. TIPTON (904) 232-1146

7. ADMINISTERED BY *(If other than Item 6)* CODE

JACKSONVILLE DISTRICT OFFICE
U.S. ARMY CORPS OF ENGINEERS
400 WEST BAY STREET
JACKSONVILLE, FLORIDA 32202-4412

8. NAME AND ADDRESS OF CONTRACTOR *(No., street, county, State and ZIP Code)*

CODE FACILITY CODE

(√) X

9A. AMENDMENT OF SOLICITATION NO.
DACW17-02-R-0003

9B. DATED *(SEE ITEM 11)*
14 NOV 2001

10A. MODIFICATION OF CONTRACTS/ORDER NO.

10B. DATED *(SEE ITEM 13)*

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☒ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers ☐ is extended, ☒ is not extended.

Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods:

(a) By completing Items 8 and 15, and returning 1 copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA *(If required)*

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS, IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

(√)

A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: *(Specify authority)* THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.

B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES *(such as changes in paying office, appropriation date, etc.)* SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).

C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:

D. OTHER *(Specify type of modification and authority)*

E. IMPORTANT: Contractor ☐ is not, ☐ is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION *(Organized by UCF section headings, including solicitation/contract subject matter where feasible.)*

BEACH NOURISHMENT, PHASE 2 (SOUTH REACH), SHORE PROTECTION PROJECT, BREVARD COUNTY, FLORIDA IS AMENDED AS SHOWN ON THE CONTINUATION PAGE.

THE DATE AND TIME SET FOR RECEIPT OF OFFERS REMAINS 14 DEC 2001 AT 4:00 PM.

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER *(Type or print)*		16A. NAME AND TITLE OF CONTRACTING OFFICER *(Type or print)*	
15B. CONTRACTOR/OFFEROR	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA	16C. DATE SIGNED
(Signature of person authorized to sign)		BY *(Signature of Contracting Officer)*	

SPECIFICATIONS:

A. Underlined text additions or deletions with line/cross-outs appear where revisions have been made to the test on the enclosed revised pages and pertain only to changes made by this amendment.

B. The text changes may have necessitated reformatting of subsequent text or pages. If this is the case, those pages have also been issued as amended pages but are not marked with underlining or line/cross-outs.

SECTION 00010 - Delete pages 00010-4 thru 00010-6 and replace with revised attached pages.
SECTION 01270 - Delete Section 01270 in its entirety and replace with revised/added pages.
SECTION 01410 - Delete pages 01410-11 and 01410-12 and replace with revised attached page. All Appendices remain unchanged.
SECTION 01411 - Delete pages 01411-4 and 01411-5 and replace with revised attached pages. All Appendices remain unchanged.
SECTION 02391 - Delete Section 02391 in its entirety and replace with revised/added attached pages. All Appendices remain unchanged.

DRAWINGS: D.O. File No. 24-38,182 dated March 2001 in 32 sheets.
Delete Dwg. No. 4/7 and replace with revised attached sheet.

SUPPLIES OR SERVICES AND PRICES/COSTS

BEACH NOURISHMENT, PHASE 2 (SOUTH REACH), BREVARD COUNTY SHORE PROTECTION PROJECT

LINE ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
0001	**BASE OFFER:** R-127 TO R-139				
0001AA	MOBILIZATION AND DEMOBILIZATION		LUMP SUM		$_____
0001AB	BEACH FILL (ESTIMATED QUANTITY)	943,000	CUBIC YARD	$_____	$_____
0001AC	BEACH TILLING (ESTIMATED QUANTITY)	35	ACRE	$_____	$_____
0001AD	TURBIDITY MONITORING		LUMP SUM		$_____
0001AE	CONSTRUCTION/VIBRATION CONTROL AND MONITORING		LUMP SUM		$_____
0001AF	MOBILIZATION AND DEMOBILIZATION FOR SEA TURTLE TRAWLING AND RELOCATION (SEE NOTE (1) BELOW) (HOPPER DREDGES ONLY)		LUMP SUM		$_____
0001AG	SEA TURTLE TRAWLING AND RELOCATION (ESTIMATED QUANTITY) (SEE NOTE (1) BELOW) (HOPPER DREDGES ONLY)	5	DAY	$_____	$_____
0001AH	GRADE STAKE REMOVAL		LUMP SUM		$_____
	TOTAL BASE OFFER (LINE ITEMS 0001 THROUGH 0001AH)				$_____
0002	**OPTIONAL ITEM A:** R-125T TO R-127				
0002AA	MOBILIZATION AND DEMOBILIZATION (SEE NOTE (2) BELOW)		LUMP SUM		$_____
0002AB	BEACH FILL (ESTIMATED QUANTITY)	157,000	CUBIC YARD	$_____	$_____
0002AC	BEACH TILLING (ESTIMATED QUANTITY)	6	ACRE	$_____	$_____
0002AD	TURBIDITY MONITORING		LUMP SUM		$_____
0002AE	CONSTRUCTION/VIBRATION CONTROL AND MONITORING		LUMP SUM		$_____
0002AF	MOBILIZATION AND DEMOBILIZATION FOR SEA TURTLE TRAWLING AND RELOCATION (SEE NOTE (1) BELOW) (HOPPER DREDGES ONLY)		LUMP SUM		$_____
0002AG	SEA TURTLE TRAWLING AND RELOCATION (ESTIMATED QUANTITY) (SEE NOTE (1) BELOW) (HOPPER DREDGES ONLY)	5	DAY	$_____	$_____
0002AH	GRADE STAKE REMOVAL		LUMP SUM		$_____
	TOTAL OPTIONAL ITEM A (LINE ITEMS 0002 THROUGH 0002AH)				$_____

LINE ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
0003	**OPTIONAL ITEM B:** R-122 TO R-125T				
0003AA	MOBILIZATION AND DEMOBILIZATION (SEE NOTE (2) BELOW)		LUMP SUM		$_____
0003AB	BEACH FILL (ESTIMATED QUANTITY)	246,000	CUBIC YARD	$_____	$_____
0003AC	BEACH TILLING (ESTIMATED QUANTITY)	9	ACRE	$_____	$_____
0003AD	TURBIDITY MONITORING		LUMP SUM		$_____
0003AE	CONSTRUCTION/VIBRATION CONTROL AND MONITORING		LUMP SUM		$_____
0003AF	MOBILIZATION AND DEMOBILIZATION FOR SEA TURTLE TRAWLING AND RELOCATION (SEE NOTE (1) BELOW) (HOPPER DREDGES ONLY)		LUMP SUM		$_____
0003AG	SEA TURTLE TRAWLING AND RELOCATION (ESTIMATED QUANTITY) (SEE NOTE (1) BELOW) (HOPPER DREDGES ONLY)	5	DAY	$_____	$_____
0003AH	GRADE STAKE REMOVAL		LUMP SUM		$_____
	TOTAL OPTIONAL ITEM B (LINE ITEMS 0003 THROUGH 0003AH)				$_____
0004	**OPTIONAL ITEM C:** R-118.3 TO R-122				
0004AA	MOBILIZATION AND DEMOBILIZATION (SEE NOTE (2) BELOW)		LUMP SUM		$_____
0004AB	BEACH FILL (ESTIMATED QUANTITY)	254,000	CUBIC YARD	$_____	$_____
0004AC	BEACH TILLING (ESTIMATED QUANITTY)	9	ACRE	$_____	$_____
0004AD	TURBIDITY MONITORING		LUMP SUM		$_____
0004AE	CONSTRUCTION/VIBRATION CONTROL AND MONITORING		LUMP SUM		$_____
0004AF	MOBILIZATION AND DEMOBILIZATION FOR SEA TURTLE TRAWLING AND RELOCATION (SEE NOTE (1) BELOW) (HOPPER DREDGES ONLY)		LUMP SUM		$_____

SUPPLIES OR SERVICES AND PRICES/COSTS

BEACH NOURISHMENT, PHASE 2 (SOUTH REACH), BREVARD COUNTY SHORE PROTECTION PROJECT

LINE ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
0004AG	SEA TURTLE TRAWLING AND RELOCATION (ESTIMATED QUANTITY) (SEE NOTE (1) BELOW) (HOPPER DREDGES ONLY)	5	DAY	$_____	$_____
0004AH	GRADE STAKE REMOVAL		LUMP SUM		$_____
	TOTAL OPTIONAL ITEM C (LINE ITEMS 0004 THROUGH 0004AH)				$_____
0005	MOBILIZATION AND DEMOBILIZATION - SECOND DREDGING SEASON (SEE NOTE (3) BELOW)		LUMP SUM		$_____
	TOTAL OFFER (LINE ITEMS 0001 THROUGH 0005)				$_____

NOTES: (1) SEA TURTLE TRAWLING AND RELOCATION IS REQUIRED ONLY IF CONTRACTOR TAKES THREE TURTLES (EACH DREDGING SEASON).

(2) OFFERS FOR LINE ITEMS 0002AA, 0003AA, AND 0004AA ARE FOR COSTS ASSOCIATED WITH TRANSITIONING FROM ONE BEACH SITE TO ANOTHER (I.E., FROM BASE BID TO OPTION A, FROM OPTION A TO OPTION B, AND FROM OPTION B TO OPTION C, RESPECTIVELY). PAYMENT UNDER THESE ITEMS WILL ONLY BE MADE WHEN AND IF MOBILIZATION AND DEMOBILIZATION BETWEEN THE WORK AREAS OCCURS.

(3) OFFER FOR LINE ITEM 0005 IS FOR POTENTIAL MOBILIZATION AND DEMOBILIZATION COSTS ASSOCIATED WITH RETURNING TO THE PROJECT SITE FOR THE SECOND DREDGING SEASON TO PERFORM WORK UNDER AN OPTIONAL ITEM. IN THE EVENT WORK UNDER THIS ITEM DISPLACES THE NEED FOR TRANSITIONAL MOBILIZATION UNDER LINE ITEM 0002AA, 0003AA, OR 0004AA; PAYMENT WILL NOT BE MADE FOR THE DISPLACED MOBILIZATION/DEMOBILIZATION ITEM.

OFFERORS MUST OFFER ON ALL LINE ITEMS. SEE PROVISION AT 52.236-28 (SECTION 00100).

SEE SECTION 00100, "INSTRUCTIONS TO BIDDERS".

THE GOVERNMENT RESERVES THE RIGHT TO EXERCISE OPTIONAL ITEM(S) ANYTIME BETWEEN THE DATE OF INITIAL CONTRACT AWARD AND NOVEMBER 2002. THE GOVERNMENT INTENDS TO PROVIDE PRELIMINARY NOTICE ON EXERCISING OPTIONAL ITEM(S) NO LATER THAN 30 DAYS PRIOR TO EXERCISING OPTION.

SECTION TABLE OF CONTENTS

DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01270

MEASUREMENT AND PAYMENT

-- End of Section Table of Contents --

SECTION 01270

MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.1 LUMP SUM PAYMENT ITEMS

Payment items for the work of this contract for which contract lump sum payments will be made are listed in the BIDDING SCHEDULE and described below. All costs for items of work, which are not specifically mentioned to be included in a particular lump sum or unit price payment item, shall be included in the listed lump sum item most closely associated with the work involved. The lump sum price and payment made for each item listed shall constitute full compensation for furnishing all plant, labor, materials, and equipment, and performing any associated Contractor quality control, environmental protection, meeting safety requirements, tests and reports, and for performing all work required for which separate payment is not otherwise provided.

1.1.1 Mobilization and Demobilization (Base Line Item 0001AA; Optional A Line Item 0002AA; Optional B Line Item 0003AA; and, Optional C Line Item 0004AA~~; and, Alternate Line Item 0006AA~~)

Payment will be made for costs associated with or incidental to mobilization and demobilization and establishment of initial project management and coordination. See Clause PAYMENT FOR MOBILIZATION AND DEMOBILIZATION of Section 00800 SPECIAL CONTRACT REQUIREMENTS and Section 01310 PROJECT MANAGEMENT AND COORDINATION. All appropriate costs in connection with returning to the project site for the second dredging season to perform work under an optional item shall be included in the contract lump sum price for Line Item No. 0005, "Mobilization and Demobilization - Second Dredging Season". See Section 02391 BEACH FILL.

1.1.2 Mobilization and Demobilization for Sea Turtle Trawling and Relocation (Hopper Dredges Only) (Base Line Item 0001AF; Optional A Line Item 0002AF; Optional B Line Item 0003AF; and, Optional C Line Item 0004AF~~; and, Alternate Line Item 0006AF~~)

Payment will be made for costs associated with or incidental to sea turtle trawling and relocation. See Section 01410 ENVIRONMENT PROTECTION.

1.1.3 Turbidity Monitoring (Base Line Item 0001AD; Optional A Line Item 0002AD; Optional B Line Item 0003AD; and, Optional C Line Item 0004AD~~; and, Alternate Line Item 0006AD~~)

Payment will be made for costs associated with or incidental to obtaining, analyzing, and reporting the results of monitoring for turbidity. See Section 01411 TURBIDITY AND DISPOSAL MONITORING.

1.1.4 Construction/Vibration Control and Monitoring (Base Line Item 0001AE; Optional A Line Item 0002AE; Optional B Line Item 0003AE; and, Optional C Line Item 0004AE~~; and, Alternate Line Item 0006AE~~)

Payment will be made for costs associated with or incidental to the protection of existing structures from construction activities and monitoring. See Section 02391 BEACH FILL.

1.1.5 Grade Stake Removal (Base Line Item 0001AH; Optional A Line Item 0002AH; Optional B Line Item 0003AH; and, Optional C Line Item 0004AH)

Payment will be made for costs associated with or incidental to the removal of all grade stakes from construction activities. See Section 02391 BEACH FILL.

1.2 UNIT PRICE PAYMENT ITEMS

Payment items for the work of this contract on which the contract unit price payments will be made are listed in the BIDDING SCHEDULE and described below. The unit price and payment made for each item listed shall constitute full compensation for furnishing all plant, labor, materials, and equipment, and performing any associated Contractor quality control, environmental protection, meeting safety requirements, tests and reports, and for performing all work required for each of the unit price items.

1.2.1 Beach Fill (Base Line Item 0001AB; Optional A Line Item 0002AB; Optional B Line Item 0003AB; and, Optional C Line Item 0004AB~~; and Alternate Line Item 0006AB)~~

1.2.1.1 Payment

a. Payment will be made for costs associated with or incidental to monitoring sea turtles; endangered species observers; restore and revegetate staging and access areas; barricades and signs; hydrographic surveying of Nearshore Disposal Sand Rehandling Area (NDSRA); debris removal; pipeline crossing; excavation and transportation of beach fill; constructing the beach profile; final dressing; and, noise control. See Sections 01410 ENVIRONMENT PROTECTION, 01411 TURBIDITY AND DISPOSAL MONITORING, and 02391 BEACH FILL. Any beach fill material dredged from unauthorized areas, and any fill material placed on the beach from authorized alternate sand sources not conforming with the requirements specified in subparagraph "Alternate Sand Sources" of paragraph CHARACTER OF MATERIALS of Section 02391 BEACH FILL will be subtracted from the net amount used for payment, as specified in subparagraph "Deduction for Nonconforming Work" of paragraph EXCAVATION of Section 02391 BEACH FILL.

b. In addition to the above, payment will be made for in-place beach fill to plus 0.5 foot tolerance line on both berm and slope. Payment quantities will be determined by the Contracting Officer using average end area method of calculation. When beach fill is placed up-slope above slough zone to compensate for wave action, payment of end area will be based on a cut and fill calculation. No payment will be made for material placed on the up-slope above the tolerance A(u) that exceeds A(s). (Refer to Beach Fill Tolerance figure appended to the end of Section 02391 BEACH FILL.)

1.2.1.2 Measurement

a. The maps and/or drawings already prepared (paragraph CONTRACT DRAWINGS, MAPS, AND SPECIFICATIONS of Section 00800 SPECIAL CONTRACT REQUIREMENTS) accurately represent the existing conditions at the time the surveys were performed, but the depths and elevations shown thereon shall be verified and corrected by elevations and soundings taken before commencing the work. Determination of quantities placed and the

deductions made therefrom to determine quantities by place measurement to be paid for within a specified reach or section, after having once been made, will not be reopened, except on evidence of collusion, fraud, or obvious error.

b. Beach fill satisfactorily placed will be measured for payment by use of the average end area method. The quantities shall be computed by the Government in accordance with paragraph QUANTITY SURVEYS of Section 00800 SPECIAL CONTRACT REQUIREMENTS. Measurement of quantity placed for pay purposes will be based on original and final cross sections made on the section or reach indicated on the drawings. The Contractor shall give 3 calendar days advance notice, in writing, to the Contracting Officer Representative of the need to perform the original and final surveys. Quality Control Surveys shall be the responsibility of the Contractor. Monthly partial payments will be based on approximate quantities determined by measurement of the in-place beach fill and in accordance with paragraph QUANTITY SURVEYS of Section 00800 SPECIAL CONTRACT REQUIREMENTS.

c. In accordance with paragraph QUANTITY SURVEYS of Section 00800 SPECIAL CONTRACT REQUIREMENTS, Contracting Officer will perform pre- and post-construction topographic survey at profile monument stations shown from base line to point slope intercepts pre-construction surveyed condition shore surface. In order to achieve final grade in slough zone, Contractor shall place material to final grade within tolerance for entire slope or may stockpile beach fill up-slope of slough zone. After stockpiled beach fill is measured for payment, Contractor shall shape slope to within 0.5 foot of final grade from top of slope to waterline producing a smooth uniform slope. Once post-construction survey is performed, no measurements will be revised except on suspicion of fraud or obvious error.

1.2.1.3 Unit of Measure

Cubic yard.

1.2.2 Beach Tilling (Base Line Item 0001AC; Optional A Line Item 0002AC; Optional B Line Item 0003AC; and, Optional C Line Item 0004AC~~; and, Alternate Line Item 0006AC~~)

1.2.2.1 Payment

Payment will be made for costs associated with or incidental to beach tilling. See Section 01410 ENVIRONMENT PROTECTION.

1.2.2.2 Unit of Measure

Per acre.

1.2.3 Sea Turtle Trawling and Relocation (Hopper Dredges Only) (Base Line Item 0001AG; Optional A Line Item 0002AG; Optional B Line Item 0003AG; and, Optional C Line Item 0004AG~~; and, Alternate Line Item 0006AG~~)

1.2.3.1 Payment

Payment will be made for costs associated with sea turtle trawling and relocation. See Section 01410 ENVIRONMENT PROTECTION.

1.2.3.2 Unit of Measure

Per day.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

-- End of Section --

SECTION TABLE OF CONTENTS

DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01410

ENVIRONMENT PROTECTION

-- End of Section Table of Contents --

SECTION 01410

ENVIRONMENT PROTECTION

PART 1 GENERAL

1.1 SCOPE

This section covers prevention of environmental damage as the result of construction operations under this contract and for those measures set forth in other Technical Requirements of these specifications. For the purpose of this specification, environmental damage is defined as the presence of hazardous, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances; affect other species, biological communities, or ecosystems; or degrade the quality of the environment for aesthetic, cultural, and/or historical purposes. The control of environmental damage requires consideration of land, water, and air, and includes management of visual aesthetics, noise, solid waste, radiant energy and radioactive materials, as well as other pollutants.

1.2 REFERENCES

1.2.1 Miscellaneous Environmental Laws And Regulations

There are numerous environmental laws and regulations. At the Federal level, the applicable laws and regulations include compliance with the Clean Water Act (CWA); Clean Air Act (CAA); Coastal Zone Management Act (CZMA); Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); Endangered Species Act (ESA); Fish and Wildlife Coordination Act (FWCA); Marine Protection, Research, and Sanctuaries Act (MPRSA); National Environmental Policy Act (NEPA); National Historic Preservation Act (NHPA); National Pollution Discharge Elimination System (NPDES); Research and Sanctuaries Act; Native American Graves Protection and Repatriation Act (NAGPRA); Resource Conservation and Recovery Act (RCRA); Rivers and Harbors Act (R&H); Safe Drinking Water Act (SDWA); Toxic Substance Control Act (TSCA); Wild and Scenic Rivers Act (WSRA); Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA); Code of Federal Regulations (CFRs); Executive Orders; and, Environmental Protection Agency (EPA) requirements. NEPA compliance measures specified in an Environmental Assessment (EA) or Environmental Impact Statements (EIS) are also applicable with regard to compliance.

1.2.2 Publication Reference(s)

The publication(s) listed below form(s) a part of this specification to the extent referenced. The publication(s) are referred to in the text by basic designation only.

ENGINEERING MANUALS (EM)

EM 385-1-1	(1996) Safety and Health Requirements Manual
EM 1110-1-1003	(1996) NAVSTAR Global Positioning System Surveying

1.3 QUALITY CONTROL

The Contractor shall establish and maintain quality control for environmental protection of all items set forth herein. The Contractor shall record on daily quality control reports or attachments thereto, any problems in complying with laws, regulations and ordinances, and corrective action taken.

1.4 PERMITS AND AUTHORIZATIONS

The Contractor shall comply with all requirements under the terms and conditions set out in the following permit(s) and authorization(s) listed below. These permit(s) and authorization(s) are available for review by contacting the Jacksonville District, Programs and Project Management Division at 904-232-2042.

a. Florida Department of Environmental Protection Permit No. 0137212-001-JC; Effective Date: 22 November 1999; Expiration Date: 22 November 2014, as amended.

b. United States Minerals Management Service Negotiated Noncompetitive Lease for Sand Gravel and Shell Resources on the Outer Continental Shelf dated 30 June 2000, as amended..

1.5 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-04 Drawings

Turtle Deflector Device; G|CO

If the Contractor proposes to use a hopper dredge for this work, detail drawings shall be submitted showing the proposed device and its attachment to the Contractor's equipment. Contractor's drawings to be submitted shall include the approach angle for any and all depths to be dredged during this contract. A copy of the approved drawings and calculations shall be available on the vessel during the life of this contract. No dredging work shall be allowed to commence until approval of the turtle deflector device.

SD-08 Statements

Environmental Protection Plan; G|PD

Within 10 calendar days after the date of Notice of Award, the Contractor shall submit an Environmental Protection Plan for review and acceptance by the Contracting Officer. The Government will consider an interim plan for the first 30 days of operations. However, the Contractor shall furnish an acceptable final plan no later than 15 calendar days after receipt of Notice to Proceed. Approval of the Contractor's plan shall not relieve the Contractor of his responsibility for adequate and continuing control of pollutants and other environmental protection measures. Approval of the plan is conditional and predicated on satisfactory performance during construction. The Government reserves the right to require the Contractor to make changes to the Environmental Protection Plan or operations if the

Contracting Officer determines that environmental protection requirements are not being met. No physical work at the site shall begin prior to acceptance of the Contractor's plan or an interim plan covering the work to be performed. The Environmental Protection Plan shall include but not be limited to the following:

a. A list of Federal, State, and local laws, regulations, and permits concerning environmental protection, pollution control, and abatement that are applicable to the Contractor's proposed operations and the requirements imposed by those laws, regulations, and permits.

b. Methods for protection of features to be preserved within authorized work areas. The Contractor shall prepare a listing of methods to protect resources needing protection, i.e., trees, shrubs, vines, grasses and ground cover, landscape features, air and water quality, fish and wildlife (specifically including right whale, manatees, marine turtles, and southeastern beach mouse), soil, historical, archeological, and cultural resources.

c. Procedures to be implemented to provide the required environmental protection and to comply with the applicable laws and regulations. The Contractor shall provide written assurance that immediate corrective action will be taken to correct pollution of the environment due to accident, natural causes, or failure to follow the procedures set out in accordance with the environmental protection plan.

d. A permit or license for and the location of the solid waste disposal area.

e. Drawings showing locations of any proposed temporary excavations or embankments for haul roads, stream crossing, material storage areas, structures, sanitary facilities, and stockpiles of excess or spoil materials.

f. Environmental monitoring plans for the job site, including land, water, air, and noise monitoring.

g. Traffic control plan.

h. Methods of protecting surface and ground water during construction activities.

i. Spill prevention. The Contractor shall specify all potentially hazardous substances to be used on the job site and intended actions to prevent accidental or intentional introduction of such materials into the air, ground, water, wetlands, or drainage areas. The plan shall specify the Contractor's provisions to be taken to meet Federal, State, and local laws and regulations regarding labeling, storage, removal, transport, and disposal of potentially hazardous substances.

j. Spill contingency plan for hazardous, toxic, or petroleum material.

k. Work area plan showing the proposed activity in each portion of the area and identifying the areas of limited use or nonuse. Plan should include measures for marking the limits of use areas.

l. Plan of borrow area(s).

m. A statement as to the person who shall be responsible for

implementation of the Environmental Protection Plan. The Contractor personnel responsible shall report directly to the Contractor's top management and shall have the authority to act for the Contractor in all environmental protection matters.

n. Recycling and waste management plan. Executive Order 12873 of 20 October 1993 requires a number of considerations in planning a project. Fallen trees should not be burned or buried. Mulching, composting, and other uses for trees should be considered. Also, recovery of metals at the job site, including aluminum cans, should be considered with proceeds to be retained by the Contractor. Non-Federal recycling and waste minimization efforts shall also be incorporated into this plan.

o. Appendices (Permits). A copy of all permits applicable to the project shall be attached as appendices to the Environmental Protection Plan.

p. Operational plan to achieve protection of sea turtles during hopper dredge(s) operation.

SD-18 Records

Logs/Final Summary Report

Contractor shall submit as specified, logs and final summary report of sightings and incidents with endangered species.

Project Environmental Summary Sheet

Contractor shall submit within 30 days following completion of the project, a written report of the absence or occurrence of environmental incidents. In addition, for construction activities whose anticipated duration is more than one calendar year, the Contractor shall complete a sheet each May 31st (plus/minus 14 days).

Hopper Dredge(s) Recording Chart(s)

Contractor shall submit as specified, a copy of the hopper dredge(s) output recording chart(s) for each day's operation on a daily basis.

1.6 SUBCONTRACTORS

Assurance of compliance with this section by subcontractors shall be the responsibility of the Contractor.

1.7 NOTIFICATION

The Contracting Officer will notify the Contractor in writing of any observed noncompliance with the aforementioned Federal, State, or local laws or regulations, permits and other elements of the Contractor's environmental protection plan. The Contractor shall, after receipt of such notice, inform the Contracting Officer of proposed corrective action and take such action as may be approved. If the Contractor fails to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No time extensions shall be granted or costs or damages allowed to the Contractor for any such suspension.

Additionally, the Contractor shall notify the Authorized Contracting Officer's Representative (ACOR), in writing, of the absence or occurrence of environmental incidents, as required on the Project Environmental Summary Sheet, copy appended to the end of this Section. (Refer to paragraph SUBMITTALS above.)

1.8 TRAINING OF CONTRACTOR PERSONNEL IN POLLUTION CONTROL

The Contractor shall train his personnel in all phases of environmental protection. The training shall include methods of detecting and avoiding pollution, familiarization with pollution standards, both statutory and contractual, and careful installation and monitoring of the project to ensure adequate and continuous environmental pollution control. Quality Control and supervisory personnel shall be thoroughly trained in the proper use of monitoring devices and abatement equipment, and shall be thoroughly knowledgeable of Federal, State, and local laws, regulations, and permits as listed in the Environmental Protection Plan submitted by the Contractor. Quality Control personnel will be identified in the Quality Control Plan submitted in accordance with Section 01451 CONTRACTOR QUALITY CONTROL.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION

3.1 PROTECTION OF ENVIRONMENTAL RESOURCES

For contract work, the Contractor shall comply with all applicable Federal, State, or local laws and regulations. The environmental resources within the project boundaries and those affected outside the limits of permanent work under this contract shall be protected at least during the entire period of this contract. The Contractor shall confine his activities to areas defined by the drawings and specifications. Deviations from drawings or specifications (e.g., proposed alternate borrow areas, disposal areas, staging areas, and alternate access routes) could result in the need for the Government to reanalyze and reapprove the project from an environmental standpoint. Environmental protection shall be as stated in the following subparagraphs.

3.1.1 General Project Environmental Design and Installation Criteria

Some project sites have features that shall not be impacted in any way, including cultural, historic, or archeological features. At all sites, project plans should minimize disturbance to existing features at the site to the extent possible, including vegetative, topographic, and drainage pattern features. Wetland impacts (temporary access, detours, staging areas, and other work area impacts) to project sites should be avoided and may require separate permitting action. Any wetlands temporarily impacted shall have its soil restored upon project completion. Expansion of previously permitted project footprints may likewise require separate permitting action.

In all cases, the design and/or installation of project system shall provide for protection of the environment during handling, installing, storing, utilizing, transporting, servicing, testing, refilling, transferring, pumping, processing, removing waste products, repairing and maintaining systems and their components. Necessary design protection shall also be considered that would prevent contamination of the environment from impacts to the system caused by storm water runoff and flooding. Retrofit of connected systems on project sites to modern

environmental protection design standards shall also be considered.

In the event environmental protection measures fail, the Contractor shall implement procedures to control and correct environmental damage.

3.1.1.1 Petroleum-Based Systems Environmental Design and Installation Criteria

For petroleum-based systems, a statement of site suitability shall be provided and shall include what would be necessary to prevent adverse impact to water quality; natural resources; habitat; historic, cultural, and archeological sites; and fragile local resources in the event of a fuel spill. Human error and mechanical/electrical failure of components without human intervention shall also be considered in the design with regard to spills. Additionally, appropriate noise and emissions controls shall be incorporated into the design, including vapor and exhaust controls.

At a minimum, environmental protection design requirements shall also include the following: (1) stationary tanks and piping shall have secondary containment features; (2) approved materials and corrosion protection systems shall be utilized; (3) system leaks shall be readily detected and contained without human intervention; and, (4) overfill containment systems shall be provided.

Applicable Federal, State, and local codes and requirements shall be strictly adhered to in the design, including those of the U.S. Environmental Protection Agency (EPA), the State of Florida, and other local governing agencies such as those of counties and municipalities. In the case of the State, requirements include Chapter of the Florida Administrative Code (FAC) such as 62-17 (Approved Materials), 62-252 (Vapor Emissions), 62-296 (Emissions), 62-761 (Underground Storage Tanks), and 62-762 (Aboveground Tanks). Note that Chapters 62-761 and 62-762 of the FAC may be combined into one Chapter. Best Management Practices from the applicable agencies shall also be adhered to in the design.

3.1.1.2 Sewage-Based Systems Environmental Design and Installation Criteria

In general, there shall be no waste or debris discharges of any kind for a project unless authorized by the Contracting Officer. This shall include the Contractor's providing sufficient temporary sanitary equipment and facilities for the project. The design and/or installation of temporary or permanent sewage systems shall ensure that waters will be free of effects of sewage discharges. Applicable Federal, State, or local codes and requirements regarding sewage shall be strictly adhered to in the design, such as those of the EPA and, in the case of the State, Chapter 62-620 (Wastewater Facilities) of the FAC. Best Management Practices from the applicable agencies shall also be adhered to in the design.

3.1.2 Protection of Land Resources

Prior to the beginning of any construction, the Contractor shall identify all land resources to be preserved or avoided within the Contractor's work area. Materials displaced into uncleared areas shall be removed. The Contractor shall not remove, cut, deface, injure, or destroy land resources including trees, shrubs, vines, grasses, topsoil, and land forms without special permission from the Contracting Officer. The Contractor shall engage a qualified tree surgeon to perform all tree surgery. The Contractor shall be responsible to repair injuries to bark, trunk, branches, and roots of protected trees by dressing, cutting, and painting

as specified for Class I Fine Pruning, of the National Arborist Association Pruning Standards for Shade Tree or as per State's Agricultural Extension Agency Guidelines, immediately as occurrences arise. No ropes, cables, or guys shall be fastened to or attached to any trees for anchorage unless specifically authorized. Where such special emergency use is permitted, the Contractor shall provide effective protection for land and vegetation resources at all times as defined in the following subparagraphs.

3.1.2.1 Work Area Limits

Prior to any construction, the Contractor shall mark the areas that are not required to accomplish all work to be performed under this contract. Isolated areas within the general work area which are to be saved and protected shall also be marked or fenced. The Contractor shall protect from damage all existing trees designated to remain. Protection of tree roots shall be provided against noxious materials in solution caused by run-off or spillage. Fires shall be located outside the canopy of protected trees. No materials, trailers, or equipment shall be stored within the drip line of any protected tree. Monuments and markers shall be protected before construction operations commence. Where construction operations are to be conducted during darkness, the markers shall be visible. The Contractor shall convey to his personnel the purpose of marking and/or protection of all necessary objects.

The Contractor shall thoroughly clean all construction equipment at the prior job site in a manner that ensures all residual soil is removed and that egg deposits from plant pests are not present. The Contractor shall consult with the U.S. Department of Agriculture (USDA) regarding additional cleaning requirements that may be necessary.

3.1.2.2 Protection of Landscape

Trees and their roots, shrubs, vines, grasses, land forms, and other landscape features shall be clearly identified and protected by fencing or any other approved techniques. Protection of trees shall be as illustrated in the Tree Protection Plan Detail appended to the end of this Section. Tree protection fencing shall be placed before excavation or grading is begun and maintained in place until construction is complete. Branches of protected trees, if required, shall be removed to clear for construction and pruning shall subsequently be performed to restore the natural shape of the entire tree. Branches or roots, if required, shall be cut with sharp pruning instruments and not broken or chopped. Protected trees shall be fertilized to compensate for root loss with 6-6-6 as per manufacturer's application direction. Any damage to tree crowns or roots shall be repaired promptly after damage occurs.

a. Trench or Bore Under Trees. Where trenching for utilities is required within tree drip lines, the Contractor shall hand dig under and around roots or bore under them. The Contractor shall protect roots from drying and cover exposed roots within an hour as specified in subparagraph "Excavation for Structures" below. No lateral roots which interfere with new construction shall be cut. Boring is permitted.

b. Excavation for Structures. Where excavating for new construction is required within tree drip lines, the Contractor shall hand excavate to minimize damage to root systems. The Contractor shall use narrow tine pitchforks and comb soil to expose roots. The Contractor shall relocate roots in backfill areas. If large, main lateral roots are

encountered that are exposed beyond the excavation limits, the Contractor shall bend and relocate these roots without breaking or girdling. If roots are encountered immediately adjacent to new construction such that relocation is not practical, the Contractor shall saw roots approximately 3" back from the new construction, seal with tree wound dressing, and protect any exposed embankment of roots from drying by covering with straw and black plastic. The Contractor shall irrigate affected areas daily until final grade conditions are established and the exposed roots are backfilled properly for continued plant growth.

c. Replacement. The Contractor shall remove dead or damaged protected trees determined, by the Government, to be incapable of restoration to normal health growth. The Contractor shall replace each removed tree up to 4" caliper with tree of equal specie and size. For each tree removed larger than a 4" caliper, the Contractor shall replace the tree with one 4" caliper tree per 4" caliper increment or fraction thereof.

3.1.2.3 Unprotected Erodible Soils

Earthwork brought to final grade shall be finished as indicated. Side slopes and back slopes shall be protected as soon as practicable upon completion of rough grading. All earthwork shall be planned and conducted to minimize the duration of exposure of unprotected soils. Except in instances where the constructed feature obscures borrow areas, quarries, and waste material areas, these areas shall not initially be totally cleared. Clearing of such areas shall progress in reasonably sized increments as needed to use the areas developed as approved by the Contracting Officer.

3.1.2.4 Disturbed Areas

The Contractor shall effectively prevent erosion and control sedimentation through approved methods including, but not limited to, the following:

a. Retardation and Control of Runoff. Runoff from the construction site or from storms shall be controlled, retarded, and diverted to protected drainage courses by means of diversion ditches, benches, and by any measures required by area wide plans approved under paragraph 208 of the Clean Water Act.

b. Erosion and Sedimentation Control Devices. The Contractor shall construct or install temporary and permanent erosion and sedimentation control features as directed by the Contracting Officer's Representative. Temporary velocity dissipation devices shall be placed along drainage courses so as to provide for non-erosive flows. Temporary erosion and sediment control measures such as berms, dikes, drains, sediment traps, sedimentation basins, grassing, mulching, baled hay or straw, and silt fences shall be maintained until permanent drainage and erosion control facilities are completed and operative. For silt fences, the filter fabric is to be of nylon, polyester, propylene, or ethylene yarn of at least 50 lb/in strength and able to withstand a flow rate of at least 0.3 gal/ft sq/minute. The fabric should contain ultraviolet ray inhibitors and stabilizers and be a minimum of 45 inches in width. The toe of the fence shall be buried at least 8 inches deep to prevent undercutting and shall be secured to posts by suitable staples, tie wire, or hog rings. Posts shall have a cross section of at least 2"x4" and a minimum of 4 foot in length. Fence shall be overlapped to the next post if fabric joints are

necessary.

3.1.2.5 Contractor Facilities and Other Work Areas

The Contractor's field offices, staging areas, stockpile storage, and temporary buildings shall be placed in areas designated on the drawings or as directed by the Contracting Officer. Temporary movement or relocation of Contractor facilities shall be made when approved by the Contracting Officer. Borrow areas shall be managed to minimize erosion and to prevent sediment from entering nearby watercourses, wetlands, or lakes. Spoil areas shall be managed and controlled to limit spoil intrusion into areas designated on the drawings and to prevent erosion of soil or sediment from entering nearby watercourses, wetlands, or lakes. Spoil areas shall be developed in accordance with the grading plan indicated on the drawings. Temporary excavation and embankments for plant and/or work areas shall be controlled to protect adjacent areas from despoilment. If there is suspicion that sediment may be unsuitable for disposal at a specified location, the Contractor shall immediately take measures to contain the suspect sediment and notify the Contracting Officer.

3.1.2.6 Solid Wastes

Solid wastes (excluding clearing debris) shall be placed in containers which are emptied on a regular schedule. All handling and disposal shall be conducted to prevent contamination.

a. Disposal of Solid Waste by Removal from Government Property. The Contractor shall transport solid waste off Government property and dispose of it in compliance with Federal, State, and local requirements for solid waste disposal.

3.1.2.7 Fuel, Oil, and Lubricants

Fuel, oil, and lubricants shall be managed so as to prevent spills and evaporation. To prevent spills, fuel dispensers shall have a 4-foot square, 16-gauge metal pan with borders banded up and welded at corners right below the bibb. Edges of the pans shall be 8-inch minimum in depth to ascertain that no contamination of the ground takes place. Pans shall be cleaned by an approved method immediately after every dispensing of fuel and wastes disposed of offsite in an approved area. Should any spilling of fuel occur, the Contractor shall immediately recover the contaminated ground and dispose of it offsite in an approved area. Petroleum waste generated shall be stored in marked corrosion-resistant containers and recycled or disposed of in accordance with 40 CFR 279, State, and local regulations and ordinances. Fueling shall be conducted in accordance with local ordinances.

3.1.2.8 Hazardous Waste

Hazardous wastes are defined in 40 CFR 261. The Contractor shall ensure that hazardous wastes are stored and disposed of in accordance with 40 CFR 261 and State and local regulations. The Contractor shall ensure that hazardous wastes are packed, labeled, and transported in accordance with 49 CFR 173 and State and local regulations.

3.1.2.9 Hazardous Materials

The Contractor shall ensure that hazardous materials are labeled, stored, and transported in accordance with 49 CFR 173, State, and local regulations.

3.1.2.10 Disposal of Other Materials

Other materials than previously discussed (Construction and Demolition, vegetative waste, etc.) shall be handled as directed.

3.1.3 Preservation and Recovery of Historic, Archeological, and Cultural Resources

3.1.3.1 Applicable Law

A number of Federal laws require protection of cultural resources. Two laws, in particular, can be potentially involved with dredging activities: (1) the National Historic Preservation Act, as amended; and, (2) the Abandoned Shipwreck Act.

3.1.3.2 Known Resources

Known historic, archeological and cultural resources within the Contractor's work area(s) are designated as a "sensitive environmental area" on the contract drawings or other documents. ~~If so designated, the~~The Contractor shall install protection for these resources and shall be responsible for their preservation during the contract's duration. The Contractor shall not distribute maps or other information on these resource locations except for distribution among the Contractor's staff with a "need to know" technical responsibility for protecting the resources.

3.1.3.3 Inadvertent Discoveries

If, during or other construction activities, the Contractor observes items that may have historic or archeological value, such observations shall be reported immediately to the Contracting Officer so that the appropriate Corps staff may be notified and a determination for what, if any, additional action is needed. Examples of historic, archeological and cultural resources are bones, remains, artifacts, shell, midden, charcoal or other deposits, rocks or coral, evidences of agricultural or other human activity, alignments, and constructed features. The Contractor shall cease all activities that may result in the destruction of these resources and shall prevent his employees from further removing, or otherwise damaging, such resources.

The possibility of encountering submerged cultural resources is inherent in dredging and snagging operations. Such findings could include shipwrecks, shipwreck debris fields (such as streamed engine parts), prehistoric watercraft (such as log "dugouts"), and other structural features intact or displaced. The materials may be deeply buried in sediment, resting in shallow sediments or above them, or protruding into water. Suspected cultural materials inadvertently gathered from a water-saturated context should be kept moist by re-immersion, spraying, or some other expedient means of wetting until the appropriate Corps staff provide further directives. No interviews or other contact with media shall occur without clear authorization from the Contracting Officer or the appropriate Corps representative.

3.1.3.4 Claims for Downtime due to Inadvertent Discoveries

Upon discovery and subsequent reporting of a possible inadvertent discovery of cultural resources, the Contractor shall seek to continue work well away from, or otherwise protectively avoiding, the area of interest, or in some

other manner that strives to continue productive activities in keeping with the contract. Should an inadvertent discovery be of the nature that substantial impact(s) to the work schedule are evident, such delays shall be coordinated with the Contracting Officer.

3.1.4 Protection of Water Resources

The Contractor shall keep construction activities under surveillance, management, and control to avoid pollution of surface, ground waters, and wetlands. The Contractor shall plan his operation and perform all work necessary to minimize adverse impact or violation of the water quality standard. Special management techniques as set out below shall be implemented to control water pollution by the listed construction activities which are included in this contract. The Contractor's construction methods shall protect wetland and surface water areas from damage due to mechanical grading, erosion, sedimentation and turbid discharges. There shall be no storage or stockpiling of equipment, tools, or materials within wetlands or along the shoreline within the littoral zone unless specifically authorized.

3.1.4.1 Monitoring of Water Areas

Monitoring of water areas affected by construction activities shall be the responsibility of the Contractor. All water areas affected by construction activities shall be monitored by the Contractor.

3.1.4.2 Turbidity

The Contractor shall conduct his dredging and disposal operations in a manner to minimize turbidity and shall conform to all water quality standards as prescribed by Chapter 62-302, State of Florida, Department of Environmental Protection (FDEP). FDEP surface water quality standards can be obtained from the following web sites: http://www.dep.state.fl.us/ogc/documents/rules/shared/62-302.pdf and http://www.dep.state.fl.us/ogc/documents/rules/shared/62.302t.pdf.

3.1.4.3 Oil, Fuel, and Hazardous Substance Spill Prevention and Mitigation

The Contractor shall prevent oil, fuel, or other hazardous substances from entering the air, ground, drainage, local bodies of water, or wetlands. This shall be accomplished by design and procedural controls. In the event that a spill occurs despite the design and procedural controls, the following shall occur:

(1) Immediate action shall be taken to contain and cleanup any spill of oil, fuel or other hazardous substance.

(2) Spills shall be immediately reported to the Contracting Officer.

(3) Spill contingency planning shall be strictly in accordance with the criteria of 40 CFR, Part 109.

(4) To control the spread of any potential spill, absorbent materials shall be readily available and capable of absorbing the contents of the single largest tank.

(5) To control the spread of any potential spill, the Contractor shall provide a written certification of commitment of manpower,

equipment, and materials required to expeditiously cleanup and dispose of spill materials.

a. Spill Preventive Systems

System design and installation requirements have been discussed at the beginning of this Section. Temporary or portable tanks shall conform to applicable Federal, State, and local codes and requirements and shall not be placed where they may be affected by storm, flooding, or washout. Diversionary structures for spills shall be put in place in advance where practical. Both spill preventive systems and any deviations from associated requirements must be approved by the Contracting Officer prior to implementation.

b. Liabilities

The Contractor shall be liable in the amounts established in 40 CFR, Part 113 when it can be shown that oil was discharged as a result of willful negligence or willful misconduct. The penalty for failure to report the discharge of oil shall be in accordance with the provision of 33 CFR, Part 153.

3.1.5 Protection of Fish and Wildlife Resources

The Contractor shall keep construction activities under surveillance, management, and control to minimize interference with, disturbance to, and damage of fish and wildlife. Species that require specific attention along with measures for their protection shall be listed in the Contractor's Environmental Protection Plan prior to the beginning of construction operation.

3.1.5.1 Endangered Species Protection

The Contractor shall instruct all personnel associated with the project of the potential presence of manatees, sea turtles, and whales in the area, and the need to avoid collisions with these animals. All construction personnel shall be advised that there are civil and criminal penalties for harming, harassing, or killing manatees, sea turtles, or whales which are protected under the Marine Mammal Protection Act of 1972, the Endangered Species Act of 1973, and the Florida Manatee Sanctuary Act. The Contractor shall be held responsible for any manatee, sea turtle, or whale harmed, harassed, or killed as a result of construction activities.

a. Siltation Barriers. If siltation barriers are used, they shall be made of material in which manatees cannot become entangled, are properly secured, and are regularly monitored to avoid manatee entrapment. Barriers must not block manatee entry to or exit from essential habitat.

b. Special Operating Conditions

(1) All vessels associated with the project shall operate at "no wake/idle" speeds at all times while in waters where the draft of the vessel provides less than a four-foot clearance from the bottom, and vessels shall follow routes of deep water whenever possible. Boats used to transport personnel shall be shallow-draft vessels, preferably of the light-displacement category, where navigational safety permits. Mooring bumpers shall be placed on all barges, tugs, and similar large vessels

wherever and whenever there is a potential for manatees to be crushed between two moored vessels. The bumpers shall provide a minimum stand-off distance of four feet.

(2) If a manatee(s) is sighted within 100 yards of the project area, all appropriate precautions shall be implemented by the Contractor to ensure protection of the manatee. These precautions shall include the operation of all moving equipment no closer than 50 feet of a manatee. If a manatee is closer than 50 feet to moving equipment or the project area, the equipment shall be shut down and all construction activities shall cease within the waterway to ensure protection of the manatee. Construction activities shall not resume until the manatee has departed the project area.

(3) During the period December through March, hopper dredges moving through the designated critical habitat of the right whale (Eubalaena glacilis) shall take the following precautions. During evening hours or when there is limited visibility due to fog or sea states greater than Beaufort 3, the dredge operator shall slow down to 5 knots or less when traversing between areas if whales have been spotted within 15 nautical miles (nm) of the vessel's path within the previous 24 hours. In addition, the dredge operator shall maintain a 500-yard buffer between the vessel and any whale. The area designated as critical habitat in the southeastern United States encompasses waters between 31 degrees 15 seconds N (approximately located at the mouth of the Altamaha River, GA) and 30 degrees 15 seconds N (approximately Jacksonville, FL) from the shoreline out to 15 nm offshore; and the waters between 30 degrees 15 seconds N and 28 degrees 00 seconds N (approximately Sebastian Inlet, FL) from the shoreline out to 5 nm.

(4) Should dredging in the borrow areas be temporarily shutdown due to 3 turtle takes (each dredging season), the Contractor shall begin Sea Turtle Risk Assessment and Relocations. Should total turtle take reach 5 (each dredging season), all dredging in the borrow areas will cease until Contractor is notified by the Contracting Officer to resume dredging. If Contractor utilizes clamshell/cutterhead equipment, pumpout can occur from the NDSRA onto the beach only.

c. Manatee Monitoring (Clamshell only). During clamshell dredging operations, a dedicated observer shall monitor for the presence of manatees. If manatees are present, the observer shall document all activities with the use of a video camera with the capabilities of video taping at night. The video tape shall have date/time signature and record all manatee movements in the construction area and note any reactions to turbidity, sound, and light. The Contractor shall forward 3 copies to Acting Chief, Environmental Branch, P.O. Box 4970, Jacksonville, Florida, 32232-0019, within 10 days of completion of the dredging.

d. Manatee Signs. Prior to commencement of construction, each vessel involved in construction activities shall display at the vessel control station or in a prominent location, visible to all employees operating the vessel, a temporary sign at least 8-1/2" x 11" reading, "CAUTION: MANATEE HABITAT/IDLE SPEED IS REQUIRED IN CONSTRUCTION AREA." In the absence of a vessel, a temporary 3' x 4' sign reading "CAUTION:

MANATEE AREA" shall be posted adjacent to the issued construction permit. A second temporary sign measuring 8-1/2" x 11" reading "CAUTION: MANATEE HABITAT. EQUIPMENT MUST BE SHUTDOWN IMMEDIATELY IF A MANATEE COMES WITHIN 50 FEET OF OPERATION" shall be posted at the dredge operator control station and at a location prominently adjacent to the issued construction permit. The Contractor shall remove the signs upon completion of construction. Sample Manatee Caution Signs are appended to the end of this Section.

3.1.5.2 Endangered Species Observers (Hopper Dredge Only)

During dredging operations, an observer approved by the National Marine Fisheries Service (NMFS) for sea turtles, whales, and manatees shall be aboard to monitor for the presence of the species. During transit to and from the disposal area, the observer shall monitor from the bridge during daylight hours for the presence of whales, especially the right whale, during the period December through March. During dredging operations, the observer shall monitor the inflow screening for turtles and/or turtle parts.

a. Observation Sheets. The results of the monitoring shall be recorded on the appropriate observation sheet. An observation sheet shall be completed for each dredging cycle whether or not sea turtle or sea turtle parts are present. Sample observation sheets are appended to the end of this Section.

b. Endangered Species Observer(s). NMFS-approved firms shall provide and manage the endangered species observer(s). A list of acceptable firms can be obtained by contacting NMFS (Mr. Eric Hawk) in St. Petersburg, Florida at 727-570-5312. The trained observer(s) shall require quarters on board the dredge.

3.1.5.3 Manatee, Sea Turtle, and Whale Sighting Reports

Any collisions with a manatee, sea turtle, or whale or sighting of any injured or incapacitated manatees, sea turtles, or whales shall be reported immediately to the Corps of Engineers. The order of contact within the Corps of Engineers shall be as follows:

Order of Contact of Corps Personnel for Dredging
Contractor to Report Endangered Species Death or Injury

Title	Telephone Number Work Hours	After Hours
Corps, Inspector	On site	Lodging Location
Mr. Russ Tolle, Area Engineer, North Florida Area Office (CESAJ-CO-N)	904-232-2086	To be Provided
Acting Chief, Environmental Branch, Planning Division (CESAJ-PD-E)	904-232-1685	To be Provided
Mr. Charles McGehee, Chief, Construction Branch, Construction-Operations Division (CESAJ-CO-C)	904-232-1122	To be Provided
Mr. Gordon M. Butler, Jr., Chief, Construction-Operations Division (CESAJ-CO)	904-232-3765	To be Provided

The Contractor shall also immediately report any collision with and/or injury to a manatee to the Florida Marine Patrol "Manatee Hotline" 1-800-342-5367 as well as the U.S. Fish and Wildlife Service, Jacksonville

Field Station 904-232-2580 for North Florida.

3.1.5.4 Disposition of Turtles or Turtle Parts

Positively identified turtle parts shall be disposed of according to subparagraph "Solid Wastes" above. Turtle parts which cannot be positively identified on board the dredge or barge(s) shall be preserved by the observer(s) for later identification. Observer(s) shall measure, weigh, tag, and release any uninjured turtles incidentally taken by the dredge. Observer(s) (or their authorized representative) shall transport, as soon as possible, any injured turtles to a rehabilitation facility such as Sea World at Orlando, Florida.

3.1.5.5 Report Submission

The Contractor shall maintain a log detailing all incidents, including sightings, collisions with, injuries, or killing of manatees, sea turtles, or whales occurring during the contract period. The data shall be recorded on forms provided by the Contracting Officer (sample forms are appended to the end of this Section). All data in original form shall be forwarded directly to Acting Chief, Environmental Branch, P. O. Box 4970, Jacksonville, Florida, 32232-0019, within 10 days of collection and copies of the data shall be supplied to the Contracting Officer. Following project completion, a report summarizing the above incidents and sightings shall be submitted to the following:

Florida Fish and Wildlife Conservation Commission
Bureau of Protected Species Management
620 South Meridian Street
Tallahassee, Florida 32399-1600

Acting Chief, Environmental Branch
U.S. Army Corps of Engineers (CESAJ-PD-E)
P.O. Box 4970
Jacksonville, Florida 32232-0019

Area Engineer, North Florida Area Office
U.S Army Corps of Engineers (CESAJ-CO-N)
P.O. Box 4970
Jacksonville, Florida 32232-0019

U.S. Fish and Wildlife Service
6620 Southpoint Drive South, Suite 310
Jacksonville, Florida 32216-0912

National Marine Fisheries Service
Protected Species Management Branch
9721 Executive Center Drive
St. Petersburg, Florida 33702

Ms. Virginia Barker
Office of Natural Resources Management
Building A
2725 Judge Fran Jamieson Way
Viera, Florida 32940

3.1.5.6 Hopper Dredge Equipment

Hopper dredge drag heads shall be equipped with rigid sea turtle deflectors

which are rigidly attached. No dredging shall be performed by a hopper dredge without a turtle deflector device that has been approved by the Contracting Officer. (Sample Turtle Deflector Design Details are appended to the end of this Section.)

a. Deflector Design

(1) The leading vee-shaped portion of the deflector shall have an included angle of less than 90 degrees. Internal reinforcement shall be installed in the deflector to prevent structural failure of the device. The leading edge of the deflector shall be designed to have a plowing effect of at least 6" depth when the drag head is being operated. Appropriate instrumentation or indicator shall be used and kept in proper calibration to insure the critical "approach angle". (Information Only Note: The design "approach angle" or the angle of lower drag head pipe relative to the average sediment plane is very important to the proper operation of a deflector. If the lower drag head pipe angle in actual dredging conditions varies tremendously from the design angle of approach used in the development of the deflector, the 6" plowing effect does not occur. Therefore, every effort should be made to insure this design "approach angle" is maintained with the lower drag pipe.)

(2) If adjustable depth deflectors are installed, they shall be rigidly attached to the drag head using either a hinged aft attachment point or an aft trunnion attachment point in association with an adjustable pin front attachment point or cable front attachment point with a stop set to obtain the 6" plowing effect. This arrangement allows fine-tuning the 6" plowing effect for varying depths. After the deflector is properly adjusted there shall be NO openings between the deflector and the drag head that are more than 4" by 4".

b. In Flow Basket Design

(1) The Contractor shall install baskets or screening over the hopper inflow(s) with no greater than 4" x 4" openings. The method selected shall depend on the construction of the dredge used and shall be approved by the Contracting Officer's Representative prior to commencement of dredging. The screening shall provide 100% screening of the hopper inflow(s). The screens and/or baskets shall remain in place throughout the performance of the work.

(2) The Contractor shall install and maintain floodlights suitable for illumination of the baskets or screening to allow the observer to safely monitor the hopper basket(s) during non-daylight hours or other periods of poor visibility. Safe access shall be provided to the inflow baskets or screens to allow the observer to inspect for turtles, turtle parts or damage.

(3) The turtle deflector device and inflow screens shall be maintained in operational condition for the entire dredging operation.

c. Hopper Dredge Operation

(1) The Contractor shall operate the hopper dredge to minimize

the possibility of taking sea turtles and to comply with the requirements stated in the Incidental Take Statement provided by the National Marine Fisheries Service in their Biological Opinion.

(2) When initiating dredging, suction through the drag heads shall be allowed just long enough to prime the pumps, then the drag heads must be placed firmly on the bottom. When lifting the drag heads from the bottom, suction through the drag heads shall be allowed just long enough to clear the lines, and then must cease. Pumping water through the drag heads shall cease while maneuvering or during travel to/from the disposal area. (Information Only Note: Optimal suction pipe densities and velocities occur when the deflector is operated properly. If the required dredging section includes compacted fine sands or stiff clays, a properly configured arrangement of teeth may enhance dredge efficiency which reduces total dredging hours and "turtle takes." The operation of a drag head with teeth must be monitored for each dredged section to insure that excessive material is not forced into the suction line. When excess high-density material enters the suction line, suction velocities drop to extremely low levels causing conditions for plugging of the suction pipe. Dredge operators should configure and operate their equipment to eliminate all low level suction velocities. Pipe plugging in the past was easily corrected, when low suction velocities occurred, by raising the drag head off the bottom until the suction velocities increased to an appropriate level. Pipe plugging cannot be corrected by raising the drag head off the bottom. Arrangements of teeth and/or the reconfiguration of teeth should be made during the dredging process to optimize the suction velocities.)

(3) Raising the drag head off the bottom to increase suction velocities is not acceptable. The primary adjustment for providing additional mixing water to the suction line should be through water ports. To insure that suction velocities do not drop below appropriate levels, the Contractor's personnel shall monitor production meters throughout the job and adjust primarily the number and opening sizes of water ports. Water port openings on top of the drag head or on raised stand pipes above the drag head shall be screened before they are utilized on the dredging project. If a dredge section includes sandy shoals on one end of a tract line and mud sediments on the other end of the tract line, the Contractor shall adjust the equipment to eliminate drag head pick-ups to clear the suction line.

(4) During turning operations the pumps must either be shut off or reduced in speed to the point where no suction velocity or vacuum exists.

(5) These operational procedures are intended to stress the importance of balancing the suction pipe densities and velocities in order to keep from taking sea turtles. The Contractor shall develop a written operational plan to minimize turtle takes and submit it as part of the Environmental Protection Plan.

(6) The Contractor must comply with all requirements of this specification and the Contractor's accepted Environmental Protection Plan. The contents of this specification and the Contractor's Environmental Protection Plan shall be shared with

all applicable crew members of the hopper dredge.

3.1.5.7 Recording Charts for Hopper Dredge(s)

All hopper dredge(s) shall be equipped with recording devices for each drag head that capture real time, drag head elevation, slurry density, and at least two of the following: Pump(s) slurry velocity measured at the output side, pump(s) vacuum, and/or pump(s) RPM. The Contractor shall record continuous real time positioning of the dredge, by plot or electronic means, during the entire dredging cycle including dredging area and disposal area. Dredge location accuracy shall meet the requirements of the latest version of EM 1110-1-1003. A copy of the EM can be downloaded from the following web site: http://www.usace.army.mil/inet/usace-docs/eng-manuals/em.htm. The recording system shall be capable of capturing data at variable intervals but with a frequency of not less than every 60 seconds. All data shall be time correlated to a 24 hour clock and the recording system shall include a method of daily evaluation of the data collected. Data shall be furnished to the Contracting Officer's Representative for each day's operation on a daily basis. A written plan of the method the Contractor intends to use in order to satisfy these requirements shall be included with the Contractor's Quality Control Plan.

3.1.5.8 Sea Turtle Trawling and Relocation (For Hopper Dredges Only)

a. Sea Turtle Risk Assessment and Relocation. A sea turtle risk assessment survey shall be conducted following the take of 3 sea turtles and continue until directed by the Contracting Officer. The results of each trawl shall be recorded on Sea Turtle Trawling Report appended to the end of this Section. A final report shall be prepared and submitted to the Contracting Officer's Representative prior to recommencement of dredging summarizing the results of the survey (with all forms and including total trawling times, number of trawls and number of captures). Any turtles captured during the survey shall be measured and tagged in accordance with standard biological sampling procedures with sampling data recorded on Sea Turtle Tagging and Relocation Report appended to the end of this Section. Any captured sea turtles shall be relocated down current at least 3 miles from the location recorded on the Sea Turtle Tagging and Relocation Report form.

b. Sea Turtle Trawling Procedures. An approved sea turtle trawling and relocation supervisor shall provide researchers and nets to capture and relocate sea turtles, shall conduct Sea Turtle Risk Assessment Survey, and shall conduct any initiated sea turtle trawling. Turtles shall be captured with trawl nets to determine their relative abundance at the borrow areas during dredging. Methods and equipment shall be standardized including data sheets, nets, trawling direction to current, length of station, length of tow, and number of tows per station. Data on each tow shall be recorded using Sea Turtle Trawling Report appended to end of this Section. The trawler shall be equipped with two 60-foot nets constructed from 8-inch mesh (stretch) fitted with mud rollers and flats as specified in Turtle Trawl Nets Specifications appended to the end of this Section. Paired net tows shall be made for 10 to 12 hours per day or night. Trawling shall be conducted with the current flow using repetitive 15-30 minute (total time) tows at the borrow areas. Tows will be conducted such that an adequate portion of the borrow areas are sampled to reasonably assure no further turtle takes. Positions at the beginning and end of each tow shall be determined from GPS Positioning equipment. Tow speed

shall be recorded at the approximate midpoint of each tow. Refer to EM 1110-1-1003, paragraph 5.3 and Table 5-1, for acceptable GPS criteria.

c. Water Quality and Physical Measurements. Water temperature measurements shall be taken at the water surface each day using a laboratory thermometer. Weather conditions shall be recorded from visual observations and instruments on the trawler. Weather conditions, air temperature, wind velocity and direction, sea state-wave height, and precipitation shall be recorded on the Sea Turtle Trawling Report appended to the end of this Section. High and low tides shall be recorded.

d. Initiation of Trawling. Initiate trawling if three turtles are taken. The Contractor must initiate trawling and relocation activity in the dredging areas within 8 hours of the occurrence of the take. Trawling shall continue until suspended by the Contracting Officer's Representative.

e. Approved Trawling Supervisor. Trawling shall be conducted under the supervision of a biologist approved by the NMFS. A letter of approval from NMFS shall be provided to the Contracting Officer's Representative prior to commencement of trawling.

f. Turtle Excluder Devices. Approval for trawling for sea turtles without Turtle Excluder Devices (TEDs) must be obtained from NMFS. Approval for capture and relocation of sea turtles must be obtained from the Florida Fish and Wildlife Conservation Commission (FF&WCC). Approvals must be submitted to the Contracting Officer's Representative prior to trawling.

g. Report Submission. Following completion of the project, a copy of the Contractor's log regarding sea turtles shall be forwarded to the Acting Chief, Environmental Branch and the Area Engineer, North Florida Area Office within 10 working days.

3.1.5.9 Sea Turtle Monitoring

a. Sea Turtle (Work Stoppage) Window and Monitoring. The Local Sponsor (Brevard County) will perform sea turtle monitoring and relocation of nests on the beach for this project from August 25th through November 30th, and from March 1st through the date of completion of beach construction activity, each year. If dredging and placement of material in the beach fill area has commenced on or before March 1st, and/or will be conducted between November 1st through November 30th, turtle monitoring and nest location/relocation shall commence on March 1st and continue concurrently with the performance of work until April 30th or until all construction activity on the beach has ceased, and/or will commence 65 days prior to construction in November and proceed through October. No construction activity or equipment are allowed at the beach site during the turtle nesting season from May 1st to October 31st.

b. Daily Visual Inspection. Turtle monitoring activities shall include performance of daily visual inspections of the beach at sunrise by a person permitted by the FF&WCC for handling sea turtle eggs. Any nests discovered shall be excavated and relocated by the Local Sponsor prior to 9:00 a.m. to a nearby self-release beach location where artificial lighting and/or other disturbances shall not interfere with successful incubation, hatching nor hatchling orientation. The

Contractor shall be apprised at or about dawn of each workday, by local marine turtle monitoring personnel, of the presence of, or the need to relocate nests proximate to the construction activity. The dredging Contractor shall coordinate with Brevard County to preclude any interference between the dredging/disposal operations and the turtle monitoring activities.

Only those nests that may be affected by construction activities shall be relocated. Nest relocations in association with construction activities shall cease when construction activities no longer threaten nests. Nests deposited within areas where construction activities have ceased or will not occur for 65 days shall be marked and left in place unless other factors threaten the success of the nest. Any nests left in the active construction zone shall be clearly marked, and all mechanical equipment shall avoid nests by at least 10 feet.

3.1.5.10 Beach Placement Restrictions

a. Equipment Lighting During Sea Turtle Nesting Period March 1st through April 30th and November 1st through November 30th. Direct lighting of the beach and near shore waters shall be limited to the immediate construction area and shall comply with safety requirements. Lighting on offshore or onshore equipment shall be minimized through reduction, shielding, lowering, and appropriate placement to avoid excessive illumination of the waters surface and nesting beach while meeting all Coast Guard, EM 385-1-1, and OSHA requirements. Refer to Beach Lighting Schematic appended to the end of this Section

b. Pipeline Placement. Any construction pipes placed parallel to the shoreline shall be placed as far landward as possible up to the vegetated dune line.

c. Beach Tilling. Till the fill area between the landward edge and the seaward edge of the top of the berm with equipment operated so as to penetrate and loosen beach sand (a) to a depth of 36 inches and (b) laterally without leaving unloosened compact sand between the adjacent paths of tines or penetrating part of the equipment. (Suitable equipment is Caterpillar D9L/No. 9 Adjustable Parallelogram Multishank Ripper, or equal.)

3.1.5.11 Protection of Southeastern Beach Mouse

The Contractor shall not operate vehicles/equipment or place beach fill or conduct grading across vegetated areas along the landward edge of the beach fill work area that provide habitat for the southeastern beach mouse. Such areas, if any, shall be marked in advance of construction by the Government; and, the Contractor shall maintain all activities well clear of these areas..

3.1.6 Protection of Air Resources

The Contractor shall keep construction activities under surveillance, management, and control to minimize pollution of air resources. All activities, equipment, processes and work operated or performed by the Contractor in accomplishing the specified construction shall be in strict accordance with the applicable air pollution standards of the State of Florida (Florida Statute, Chapter 403 and others and Chapters 200 series of the FAC) and all Federal emission and performance laws and standards, including the U.S. Environmental Protection Agency's Ambient Air Quality

Standards. Information regarding Florida Statutes can be obtained from the following web sites:
http://www.dep.state.fl.us/ogc/documents/statutes/text/403.doc;
http://www.dep.state.fl.us/ogc/documents/rules/aiur/62-213.doc; and,
http://www.dep.state.fl.us/ogc/documents/rules/mainrule.htm.

3.1.6.1 Particulates

Particulates, such as dust, shall be controlled at all times, including weekends, holidays, and hours when work is not in progress. The Contractor shall maintain excavations, stockpiles, haul roads, permanent and temporary access roads, plant sites, spoil areas, borrow areas, and work areas within or outside the project boundaries free from particulates that would cause air pollution standards to be exceeded or that would cause a hazard or nuisance. The Contractor shall have the necessary equipment and approved methods to control particulates as the work proceeds and before a problem develops.

3.1.6.2 Burning

All burning shall be subject to State and local requirements, including requirements for burn permits and bans during certain conditions such as droughts.

3.1.6.3 Odors

Odors shall be controlled at all times for all construction activities.

3.1.7 Protection of Sound Intrusions

The Contractor shall keep construction activities under surveillance and control to minimize damage to the environment by noise. Refer to paragraph NOISE CONTROL of Section 02391 BEACH FILL.

3.2 DAILY AND POSTCONSTRUCTION CLEANUP

The Contractor is responsible for daily cleanup of litter discharged by this staff, subcontractors and their activities. The Contractor shall clean up area(s) used for construction.

3.3 PRESERVATION AND RESTORATION OF LANDSCAPE AND MARINE VEGETATION DAMAGES

The Contractor shall restore all landscape features and marine vegetation damaged or destroyed during construction operations outside the limits of the approved work areas. Such restoration shall be a part of the Environmental Protection Plan as defined in subparagraph "Environmental Protection Plan" of paragraph SUBMITTALS above. This work shall be accomplished at the Contractor's expense.

3.4 MAINTENANCE OF POLLUTION CONTROL FACILITIES

The Contractor shall maintain all constructed facilities and pollution control facilities and devices for the duration of the contract or for that length of time construction activities create the particular pollutant.

3.5 TREE PROTECTION PLAN DETAIL

See APPENDIX A at the end of this Section (1 page).

3.6 SAMPLE - MANATEE CAUTION SIGNS

See APPENDIX B at the end of this Section (2 pages).

3.7 SAMPLE - DAILY MANATEE REPORTING LOG

See APPENDIX C at the end of this Section (1 page).

3.8 SAMPLE - HOPPER DREDGE REPORTING LOG--TURTLE OBSERVER NOTES

See APPENDIX D at the end of this Section (1 page).

3.9 SAMPLE - INCIDENT REPORT OF SEA TURTLE MORTALITY AND DREDGING ACTIVITIES

See APPENDIX E at the end of this Section (1 page).

3.10 CONCEPTUAL TURTLE DEFLECTOR DESIGN DETAILS

See APPENDIX F at the end of this Section (2 pages).

3.11 SEA TURTLE TRAWLING REPORT

See APPENDIX G at the end of this Section (1 page).

3.12 SEA TURTLE TAGGING AND RELOCATION REPORT

See APPENDIX H at the end of this Section (1 page).

3.13 TURTLE TRAWL NETS SPECIFICATIONS

See APPENDIX J at the end of this Section (1 page).

3.14 SAMPLE - WHALE SIGHTING LOG

See APPENDIX K at the end of this Section (1 page).

3.15 BEACH LIGHTING SCHEMATIC

See APPENDIX L at the end of this Section (1 page).

3.16 PROJECT ENVIRONMENTAL SUMMARY SHEET

See APPENDIX M at the end of this Section (2 pages).

-- End of Section --

SECTION TABLE OF CONTENTS

DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01411

TURBIDITY AND DISPOSAL MONITORING

-- End of Section Table of Contents --

SECTION 01411

TURBIDITY AND DISPOSAL MONITORING

PART 1 GENERAL

1.1 SCOPE

The work covered by this section consists of furnishing all labor, materials, and equipment, and performing all work required to obtain, analyze, and report the results of turbidity and disposal monitoring.

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-06 Instructions

Calibration Standard

The Contractor shall furnish to the Contracting Officer's Representative (COR) a copy of the operating instructions and standards used in calibrating equipment used in collecting samples for turbidity.

SD-09 Reports

Turbidity Monitoring

All required turbidity test reports shall be submitted (preferably by electronic mail) to the COR, the Acting Chief, Environmental Branch (CESAJ-PD-E), and the Florida Department of Environmental Protection (FDEP) within 24 hours after completion of each test. At the completion of the project, a Cumulative Summary Report shall also be submitted as indicated herein.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION

3.1 MONITORING REQUIREMENTS

3.1.1 General

Water samples shall be obtained and analyzed for turbidity. Sampling shall be conducted in accordance with techniques described in the latest edition of "Standard Methods" published by the American Public Health Association (APHA), American Waterworks Association (AWWA), and Water Pollution Control Federation (WPCF), and other current techniques recognized by the scientific community and approved by the Jacksonville District, Corps of Engineers. Samples obtained for turbidity analysis shall be analyzed within 30 minutes of collection. Samples shall be taken with a sampler obtaining samples uncontaminated by water from any other depth.

3.1.1.1 Turbidity Monitoring Equipment

Monitoring required for turbidity shall be measured in Nephelometric Turbidity Units (NTU) using a standard Nephelometer.

3.1.2 Dredging Locations

Routine monitoring shall occur at the following locations:

3.1.2.1 Station Descriptions

a. Dredge Site (Only When Offshore Borrow Area Used)

(1) Turbidity samples shall be taken no more than 150 meters down current from the dredge, in the densest portion of any visible turbidity plume. Samples shall be collected from the surface and 1-meter above the bottom.

(2) A background turbidity sample shall be collected 500 meters from the dredge in the opposite direction of the prevailing current flow, clearly outside the influence of any turbidity plume. Samples shall be collected from the surface and 1-meter above the bottom.

b. Beach Fill Site

(1) Turbidity samples shall be taken at a point no more than 150 meters down current from the discharge point within the densest portion of any visible turbidity plume caused by construction activities. If a plume is not visible, the samples shall be collected 50 meters from the shoreline. Samples shall be collected from the surface and 1-meter above the bottom.

(2) A background turbidity sample shall be collected 500 meters up current from the point where discharge water is entering waters of the State (discharge point), clearly outside the influence of any turbidity plume. Samples shall be collected from the surface and 1-meter above the bottom at the same distance offshore as the compliance station.

c. Nearshore Disposal and Sand Rehandling Area (NDSRA)

(1) Turbidity samples shall be taken at a point no more than 150 meters down current from the dredge or disposal location within the densest portion of any visible turbidity plume caused by the construction activities. Samples shall be collected from the surface and 1-meter above the bottom.

(2) A background turbidity sample shall be collected 500 meters from the dredge or disposal location in the opposite direction of the prevailing current flow, clearly outside the influence of any turbidity plume caused by the construction activities. Samples shall be collected from the surface and 1 meter from the bottom.

3.1.2.2 Collection Frequency

a. Dredging Site. Every 6 hours during daylight hours only, or if a hopper dredge is used, each 6-hour daylight sample should be taken approximately midway through a fill cycle while the dredge is actively

dewatering or discharging overflow.

b. Beach Fill Site. Every 6 hours during beach disposal during daylight hours only.

c. Nearshore Disposal and Sand Rehandling Area (NDSRA). Approximately every 6 hours between 15 and 30 minutes after disposal of a barge load of material, and every 6 hours during dredging, during daylight hours only.

3.2 TURBIDITY TESTS

3.2.1 Testing

The Contractor shall provide the Government with a certification, attesting to the accuracy of his testing equipment and procedure. The Contractor shall also provide the Government with a duplicate of the standard used to calibrate his testing instrument as well as a complete set of operating instructions for the turbidity testing equipment. The Contractor and the Corps will use this standard throughout the project to maintain the calibration of the equipment. Whenever there is doubt as to the adequacy of the testing or validity of the results, the COR may direct that additional tests be performed at no additional cost to the Government.

3.2.2 Reporting

The monitoring data shall be recorded on forms that contain the pertinent information listed. An example form is appended to the end of this Section. Also appended to the end of this Section is an example of a Cumulative Summary Report. Other data shall be submitted in the form supplied by the laboratory chosen to do the analysis. All summary data shall be forwarded (preferably electronically) to the COR, Environmental Quality Section (CESAJ-PD-EE), and FDEP within ~~24 hours~~7 days of collection. Electronic mail addresses of the Corps and FDEP personnel to receive these reports are provided below. Reports shall be provided in a common format such as Excel Spreadsheet (.xls) files, Word (.doc) files, and Web Graphics (Joint Photographic Group or .jpg) files.

NAME	ORGANIZATION	E-MAIL ADDRESS
Russ Tolle	USACE COR	russ.tolle@usace.army.mil
Mark Wolff	USACE COR	mark.e.wolff@usace.army.mil
Matt Miller	USACE PD-EE	matthew.j.miller@usace.army.mil
Keith Mille	FDEP	Keith.Mille@dep.state.us.fl
Martin Seeling	FDEP	Martin.Seeling@dep.state.us.fl
Kevin Bodge	Brevard County	kbodge@olsen-associates.com

3.2.2.1 Report Contents

a. Permit application number.
b. Dates of sampling and analysis.
c. A statement describing the methods used in collection, handling, storage, and quality control methods used in the analysis of the samples.
d. A map indicating the sampling location (example map appended to the end of this Section).
e. A map plotting the dredge location during each traverse through the borrow area. This map can be combined with the map indicating the sampling location.

f. A statement by the individual responsible for implementation of the sampling program concerning the authenticity, precision, limits of detection, and accuracy of the data.
g. Results of the analyses.
h. A description of any factors influencing the dredging operation or the sampling program. Reports shall be furnished daily even when no sampling is conducted. When sampling is not conducted, a brief statement shall be given in the report explaining the reason for not conducting the sampling, such as "dredge not working due to mechanical problems" or "no samples taken due to high seas".

3.2.2.2 Monitoring Reports

Monitoring reports shall also include the following information for each day that samples are taken:

a. Time of day and date samples were taken.
b. Depth of water body.
c. Depth of sample.
d. Antecedent weather conditions.
e. Tidal stage and direction of flow (direction toward which current is flowing).
f. Dredge locations (station location and map).
g. Water sample location.
h. Wind direction (direction from which wind is blowing) and velocity.
i. Cumulative Summary Report (refer to example appended to the end of this Section).

3.2.2.3 Notification

If turbidity exceeds background levels by more than 29 NTU, the Contractor shall immediately notify Acting Chief, Environmental Branch at 904-232-2202 and the COR, or on the morning of the following work day if it occurs after normal work hours. In addition, all dredging activity shall cease immediately and all measures to reduce turbidity shall be taken. Dredging shall not resume until corrective measures have been taken and turbidity has returned to acceptable levels as determined by proper testing described in subparagraph "Dredging Locations" above.

3.2.2.4 Work Delay

Delays in work due to the fault or negligence of the Contractor or the Contractor's failure to comply with this specification shall not be compensable. Any adjustments to the contract performance period or price that are required as a result of compliance with this section shall be made in accordance with the provisions of the Clause SUSPENSION OF WORK of Section 00700 CONTRACT CLAUSES.

3.3 SAMPLE - TURBIDITY MONITORING TEST REPORT

See APPENDIX A at the end of this Section (with example location map appended) (6 pages).

3.4 EXAMPLE - CUMULATIVE SUMMARY REPORT

See APPENDIX B at the end of this Section (1 page).

-- End of Section --

SECTION TABLE OF CONTENTS

DIVISION 02 - SITE WORK

SECTION 02391

BEACH FILL

-- End of Section Table of Contents --

SECTION 02391

BEACH FILL

PART 1 GENERAL

1.1 SCOPE

The work covered by this section consists in furnishing all plant, labor, equipment, supplies and material, and in performing all operations in connection with excavating, transporting, and placing beach fill on the beaches as indicated on the drawings and specified herein.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 422	(1963; R 1998) Test Method for Particle-Size Analysis of Soils
ASTM E 1527	(1997) Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Data

Equipment and Performance Data

The Contractor shall furnish proof of electronic positioning equipment calibration to the Contracting Officer.

Hydrographic Surveys of the Nearshore Disposal and Sand Rehandling Area (NDSRA)

If the NDSRA is utilized, the Contractor shall provide to the Contracting Officer a digital survey in x-y-z format, NAD 1927 and MLW datum prior to, subsequent to, and at 45-day intervals during activity within the NDSRA. The surveys shall be conducted at a spacing of 250-feet alongshore (north-south) across the area(s) used for construction. The survey lines shall extend a minimum of 2,500 feet landward and 500 feet seaward of the rehandling area's east-west limits, and shall extend a minimum of 500 feet to the north and south of the area(s) used for rehandling activity.

SD-08 Statements

Vibration Control Plan; G|ED

After the Notice to Proceed, the Contractor shall submit a Vibration Control Plan. Approval of the plan will not relieve the Contractor of his responsibility to document pre-existing conditions and to avoid damaging existing structures whether or not the structure(s) was determined to be susceptible to vibration damage; this includes but is not limited to damages as a result of equipment impact and/or vibration induced damages. The Vibration Control Plan shall include, but not be limited to, the following:

a. Name of Vibration Control Specialist and alternate.

b. List of structures that are susceptible to vibration damage.

c. Number of monitors (seismographs) required for the project, monitor locations, and the number of monitors that will operate simultaneously during the project.

d. Calibration data for each seismograph that will be used on the project. Calibrations shall be current, not older than one year, and follow the manufacturer's recommended procedures.

e. List of methods and procedures to reduce ground vibrations induced by construction activities to below the pre-determined maximum allowable vibration level for the designated vibration sensitive structure; i.e., reducing equipment speed, changing fill placement method, reducing equipment size, and using manual labor.

f. Plan for each work area showing the proposed construction equipment in the area, the description of susceptible structure(s) in the work area, monitors in the work area, and the list of methods and procedures in subparagraph e. above.

g. The minimum safe working distance that vibration producing equipment may operate from each vibration sensitive structure.

h. The maximum allowable ground vibration level that is permissible without causing threshold damage to each vibration sensitive structure(s).

i. The Pre-Construction Survey for vibration control monitoring.

Hazardous Toxic and Radiation Waste (HTRW) Evaluation and Environmental Sampling Plan for Alternate Sand Source; G|PD

After the Notice to Proceed, the Contractor shall submit an Environmental Sampling Plan which will include a Phase 1 HTRW report for any alternative sand source. Approval of the Plan will not relieve the Contractor of his responsibility to document pre-existing conditions and to avoid contaminating any portion of the beach placement area with substandard material. Although an Environmental Sampling Plan needs to be submitted, actual environmental sampling may not be required. The Government will make this determination based on the information provided, inspections of the borrow area, and monitoring the work for the duration of the project. The Government may direct the Contractor to conduct environmental sampling at any point for the duration of the project, based on site conditions. The Environmental Sampling Plan shall be in accordance with subparagraph

"Environmental Requirements and Permits" of paragraph CHARACTER OF MATERIALS below and shall include, but not be limited to, the following:

a. Phase 1 HTRW Report.

b. Project drawings of the borrow area with proposed sampling locations shown on the drawings.

c. Information on the certified laboratory or laboratories (names, addresses, and phone numbers) that will be utilized to conduct the testing.

d. Methodologies and procedures for sampling and laboratory analysis.

SD-08 Statements

Construction and Grade Stakes Recovery Plan; G|AE

After the Notice to Proceed, the Contractor shall submit a Construction and Grade Stakes Recovery Plan. The plan will outline the steps that the Contractor will implement to recover all the stakes used on the project. This plan will include the use of an inventory log that will be made available for review by the appropriate Government personnel. A sample Plan is appended to the end of this Section.

SD-09 Reports

Monitoring Report

The Contractor's Vibration Control Specialist shall submit a written vibration monitoring report (every two weeks) to the Contracting Officer which details the daily activities of the vibration monitoring program. This report shall include, but not be limited to, location of monitoring equipment; instrument serial number; date and times of readings; magnitude of vibration levels; a sketch for each monitoring station showing the relationship of the monitor to vibration sensitive structures; daily instrument logs - as defined below; instructions transmitted to the Contractor's personnel regarding the modification or stoppage of work operations to keep vibrations below the allowable levels; and, any other information pertinent to the vibration monitoring program.

Monitoring Location Set-Up

Submit (every two weeks) photograph (3" x 5") and sketch of each monitoring location after equipment is installed. Show general location of the monitoring site on the sketch.

Daily Instrument Logs

Submit (every two weeks) daily instrument logs to document satisfactory performance of the equipment during monitoring periods. Document strip charts daily with monitoring station number, date, operator signature, and instrument serial number.

Post-Construction Structural Survey

Submit two copies of the post-construction survey report within 15 calendar days after completion of the inspection.

Alternate Sand Source Test Report

Refer to paragraph QUALITY CONTROL SAMPLING FOR ALTERNATE SAND SOURCE below.

Environmental Sampling Report for Alternative Sand Source; G|PD

If environmental sampling is determined to be necessary by the Government, Contractor will be directed to conduct sampling and provide laboratory results on the criteria that was determined to be necessary. The laboratory results/report (environmental sampling report) will be provided within 2 weeks after the Government notifies the Contractor to conduct the sampling. The report shall include, but not be limited to, sample locations, project drawings with the sample locations, dates and times of sampling, criteria that was tested for along with the method detection limits for each criteria, summary statement on the test results, etc. For additional information, see subparagraph "Environmental Requirements and Permits" of paragraph CHARACTER OF MATERIALS below.

SD-13 Certificates

Grade Stake Recovery; G|AE

After completion of the project, the Contractor shall provide a letter to the Contracting Officer's Representative certifying that all grade stakes have been recovered in accordance with the Contractor's approved Construction and Grade Stake Recovery Plan.

SD-14 Samples

Alternate Sand Source Quality Control Sample

Refer to paragraph QUALITY CONTROL SAMPLING FOR ALTERNATE SAND SOURCE below.

SD-18 Records

Notice of Installation of Lighted Aids to Navigation and Intent to Dredge

Prior to commencement of work on this contract, the Contractor will be required to notify the Commander, Seventh Coast Guard District of his intended operations to install lighted aids to navigation and intent to dredge and request that it be published in the Local Notice to Mariners. This notification must be given in sufficient time so that it appears in the Notice to Mariners at least 30 days prior to the commencement of this operation. A copy of the notification shall be provided to the Contracting Officer.

Relocation of Navigation Aids

The Contractor shall notify the Commander, Seventh Coast Guard District, Miami, Florida, in writing, with a copy to the Contracting Officer, 30 days in advance of the time he plans to dredge adjacent to any aids which require relocation to facilitate dredging. The Contractor shall contact the U.S. Coast Guard for information concerning the position to which the aids will be relocated. A copy of the notification shall be provided to the Contracting Officer.

Notification of Discovery of Historical Period Shipwreck Sites

The Contractor shall immediately notify the Contracting Officer if any

shipwreck, artifact, or other objects of antiquity that have scientific or historical value, or are of interest to the public, are discovered, located, and/or recovered.

Daily/Monthly Report of Operations

The Contractor shall prepare and submit three (3) copies of the Daily Report of Operations, using either ENG Form No. 27A or ENG Form No. 4267, for each dredge working. This report shall be submitted on a daily basis and not in groups (groups = multi-days reports packaged together at one time), except as noted in subparagraph a. below. A copy of these forms are appended to the end of this Section. In addition to the daily report, the Contractor shall prepare a Monthly Report of Operations for each month or partial month's work on either ENG Form No. 27A or ENG Form No. 4267. The monthly report shall be submitted on or before the 7th of each month, consolidating the previous month's work. Upon completion of the job, the Contractor shall submit a consolidated job report, combining the monthly reports. The Contractor shall distribute one copy of each report to the following:

a. District Engineer, ATTN: CESAJ-EN-C; U.S. Army Engineer District, Jacksonville, P.O. Box 4970, Jacksonville, Florida 32232-0019. Reports shall be submitted on a monthly basis with daily reports accompanying the monthly reports and job report.

b. Quality Assurance Representative (QAR) assigned to the dredge/project.

Additionally, one copy of these forms shall be maintained by the Contractor on the dredge(s) for the Government's inspection purpose. Further instructions on the preparation of the report will be furnished at the Preconstruction Conference.

Notice of Misplaced Material

The Contractor shall notify the U.S. Coast Guard Marine Safety Office of any misplaced material as stated in the Clause OBSTRUCTION OF NAVIGABLE WATERWAYS of Section 00700 CONTRACT CLAUSES.

Qualifications for Structural Inspection/Evaluation and Vibration Monitoring Personnel; G|ED

Within 7 calendar days of the Notice of Award, the Contractor shall furnish to the Contracting Officer, for approval, qualifications of all personnel required to perform all structural inspection and vibration monitoring to be performed during the life of this contract.

Grade Stake Log

The Contractor shall prepare and maintain a log to inventory the grade stakes used on the project. The log shall include information concerning the location, installation, and recovery of all grade stakes. The Contractor shall make this log available for review by the appropriate Government personnel upon request. Upon completion of the project, the Contractor shall furnish the log to the Contracting Officer.

1.4 ORDER OF WORK

The Contractor shall begin his filling operations at any point along the

Base Bid project beach. The Base Bid area must be completed and accepted first by 30 April 2002. Once each Base Bid or Option area is begun, the Contractor shall maintain a continuous filling operation within each area without any intervening gaps except as otherwise approved by the Contracting Officer.

1.5 PUMPING OF BILGES

Contractors are warned that pumping oil or bilge water containing oil into navigable waters, or into areas which would permit the oil to flow into such waters, is prohibited by Section 13 of the River and Harbor Act of 1899, approved 3 March 1899 (30 Stat. 1152; 33 U.S.C. 407). Violation of this prohibition is subject to penalties provided under the referenced act.

1.6 HISTORICAL PERIOD SHIPWRECK SITES

If any shipwreck, artifact, or other objects of antiquity that have scientific or historical value, or are of interest to the public are discovered, located, and/or recovered, the Contractor acknowledges that:

a. The site(s), articles, or other materials are the property of the Department of State, Division of Historical Resource; and that,

b. He shall immediately notify the Contracting Officer.

Refer to subparagraph "Preservation and Recovery of Historic, Archeological, and Cultural Resources" of paragraph PROTECTION OF ENVIRONMENTAL RESOURCES of Section 01410 ENVIRONMENT PROTECTION.

1.7 FINAL CLEANUP

Final cleanup, as stated in the paragraph COMMENCEMENT, PROSECUTION AND COMPLETION OF WORK Sections 00800 SPECIAL CONTRACT REQUIREMENTS and 01000 GENERAL REQUIREMENTS, shall include the removal of all of the Contractor's plant and equipment either for disposal or reuse. Plant and/or equipment to be disposed of shall only be disposed of in a manner and at locations approved by the Contracting Officer. Unless otherwise approved in writing by the Contracting Officer, the Contractor will not be permitted to abandon pipelines, pipeline supports, pontoons, or other equipment in the disposal area, pipeline access areas, water areas, or other areas adjacent to the work site. Pilings and any other debris removed or created as a result of the execution of this contract shall be disposed of in a manner and at locations approved by the Contracting Officer.

1.8 WORK AND ACCESS AREA

1.8.1 Staging and Access Areas

Staging and access areas are shown on the contract drawings that have been identified for the Contractor's use. The staging areas shall not be used for stockpiling of beach fill material. The final limits of the staging and access areas indicated on the drawings shall be field-determined by the Government in coordination with the Local Sponsor and the Contractor. It shall be the responsibility of the Contractor to investigate and obtain any additional areas which may be necessary for his/her construction operations. The additional areas will be subject to the approval of the Contracting Officer.

1.8.2 Contractor Responsibilities

The Contractor shall exclude the public from the work area in the immediate vicinity of his operations. The Contractor shall install warning signs to warn the public and all commercial recreational boats of all construction activities. The Contractor shall be responsible for providing and maintaining all water and land access routes necessary for his equipment and plant to and from the work sites. The Contractor shall ascertain the environmental conditions which can affect water and land access, such as climate, terrain, winds, current, waves, swells, depths, shoaling, and scouring tendencies.

1.9 ADJACENT PROPERTY AND STRUCTURES

Any damage to private or public property within the project boundaries, including staging area(s) and work and access areas/roads, shall be repaired promptly by the Contractor. Any damage as a result of the Contractor's operations shall be repaired at no cost to the Government.

1.10 WORK VIOLATIONS

Work done in violation of these specifications or a verbal or written stop order of the Contracting Officer or his Authorized Representative will be considered as unsatisfactory progress for purposes of progress payments in accordance with Clause PAYMENTS UNDER FIXED-PRICE CONSTRUCTION CONTRACTS of Section 00700 CONTRACT CLAUSES.

PART 2 PRODUCTS

2.1 CHARACTER OF MATERIALS

The character of the materials within the 3 offshore borrow areas is documented by the core boring logs and laboratory data appended to the end of Section 01000 GENERAL REQUIREMENTS.

2.1.1 Space Coast Shoals Borrow Area 2

The materials in the Space Coast Shoals Borrow Area 2 (centered on coordinates X=644,000, Y=1,415,500) are represented by core borings C-2 through C-30 and BCC-14, 15, 17, 20, 47, 53, and Core No. 29 and associated laboratory data. The sands within the borrow area are primarily composed of mixtures of fine to medium grained quartz sands and fine to coarse grained sands composed of shell and shell fragments with some gravel sized shell and gravel sized shell fragments. Occasionally there are concentrations of shelly coarse sands and shelly gravels. The sands are underlain by thick deposits of clays and silts.

2.1.2 Canaveral Shoals Borrow Area 1

Borrow Area 1 is represented by core borings CB-BEV95-2, CB-BEV95-4 through CB-BEV95-25, CB-BRE-58, and CB-BRE-59 and associated laboratory data. Borrow Area 1 (centered on coordinates X=662,500, Y=1,490,000) contains sand that consists primarily of poorly graded, slightly silty, fine to medium grained quartz, with a trace to some carbonate shell and shell fragments. Occasional gravel sized shell fragments were indicated on the laboratory data.

2.1.3 Canaveral Shoals Borrow Area 1 Access Corridor

The Borrow Area 1 Access Corridor is designated by core borings CB-BEV98-1

through CB-BEV98-5 and corresponding laboratory data. The material within this access corridor consists primarily of silty sands which are poorly graded, fine to medium grained quartz, with trace to little carbonate shell and shell fragments, and occasional thin lenses of clay. Material from this access corridor shall be placed in the Canaveral Ocean Dredged Material Disposal Site (CODMDS).

2.1.4 Canaveral Shoals Borrow Area 2

The materials within the Canaveral Shoals Borrow Area 2 (centered on coordinates X=677,500, Y=1,480,000) are represented by core borings CB98-1 through CB98-30, CB-5, CB-6 and CB-9 and associated laboratory data. Much of the materials documented by these core borings have been previously dredged in an earlier dredging operation. The Contractor will have to evaluate the materials remaining based on the old core borings and the new post-dredge topographic survey of the Borrow Area. No new core borings have been drilled in this Borrow Area for the current dredging operation.

The Borrow Area contains sand that consists primarily of poorly graded, slightly silty, fine to medium grained sands, with trace to some sand sized carbonate shell and shell fragments. High silt and mud content was found in some of the borings below 46 feet MLW in the northern and southwestern parts of the borrow area. Occasional gravel sized shell fragments as indicated in the laboratory data should be expected.

2.1.5 Alternate Sand Sources

The Government has provided three offshore sand borrow areas for use in the construction of the work, as indicated on the drawings. The use of sand fill material from sources other than these two areas shall require written approval of the Contracting Officer and shall meet as a minimum the following requirements.

2.1.5.1 Physical Requirements

Sand fill material supplied by the Contractor from an alternate source shall meet the following physical specifications:

a. Composed of naturally occurring quartz and/or carbonate with no more than 20 percent sand of other mineralogical composition.

b. Due to the platy nature of shells and shell fragments, no more than 60 percent of the material shall be whole or broken shell.

c. The composite grain size distribution must meet the following gradation limits (refer to the Acceptable Gradation Range Graph appended to the end of this Section):

US Standard Sieve	Inches	Millimeters	Percent Passing
1/2"	0.5"	12.7	99-100%
14	0.056"	1.41	87-100%
20	0.033"	0.84	80-100%
30	0.023"	0.59	60- 98%
40	0.017"	0.42	25- 95%
60	0.010"	0.25	0- 70%
100	0.006"	0.149	0- 25%
200	0.003"	0.074	0- 5"

Note that although an individual sample representing the fill source may fall outside these limits, not more than 10 percent of the samples representing the fill material may deviate more than 25 percent, by weight, from these limits.

d. Free of debris, rocks and pebbles, concrete rubble, clay, and organic material.

e. Sand color shall be similar to the existing beach. Based on the Munsell Soil Color Chart, color must be within the range of:

HUE of: 2.5YR, 5 YR, 7.5 YR, 16 YR, 2.5 Y, 5 Y
CHROMA of: 1, 2, or 3
VALUE of: 6, 7, or 8

This color specification eliminates strongly colored or dark sand.

2.1.5.2 Environmental Requirements and Permits

The sand fill material shall not contain radioactive content, total recoverable petroleum hydrocarbons (TRPH), heavy metals (As, Ba, Cd, Cr, Hg, Pb, Se), volatile halogenated organics, polycyclic aromatic hydrocarbons, or other contaminants at levels in excess of those measured within the natural occurring beach sediments of the work area. The Contractor shall be responsible for obtaining all applicable permits and licenses for the extraction, transport, and placement of the sand fill material.

a. General Requirements for Borrow Sources

It is important that any material to be used for a Brevard County sand borrow source be considered to be as clean as what exists on Brevard County beaches. A Phase I Hazardous Toxic and Radioactive Waste (HTRW) Evaluation to meet the requirements of ASTM E 1527 shall be performed by the Contractor on the borrow source material. If the borrow site contains HTRW materials or is suspected of containing hazardous materials, fissionable materials, environmental contaminants or otherwise toxic materials it shall not be used as a borrow source. Materials passing these evaluation criteria will be tested as provided below, if deemed necessary by the Government based on a review of the borrow material for the duration of the project.

b. Requirements for Radioactive Isotopes

Testing for radioactive isotope is only necessary if the source of material is from non-silicate sands, phosphate mine tailings or from other suspected source(s), which potentially have unacceptable radiation levels. For testing, radiation levels and radioactivity content shall be measured for the borrow material and for beach area. The borrow area and the beach placement area shall be surveyed in a pattern approved by the Government as described below. The background radioactivity and radiation levels (milli-roentgens/hour) of the borrow area vs. the beach site shall be compared. The levels of contaminant (radioactivity content in pico-curies/gram) in borrow material cannot exceed the mean levels existing at the beach placement area. If radioactivity levels of the source material exceed the mean naturally occurring radiation levels at the beach area, the site shall not be used as a borrow source. These radiological surveys and analysis shall consist of the following:

(1) Radiation surveys are to be taken at the beach and borrow sites. The radiation levels shall be presented in graphical and tabular form. These surveys shall be taken at waist level. Additionally, samples from the beach and borrow site shall be analyzed for radioactivity levels and be reported in pico-curies per gram. The measurements shall also fall within 1 standard deviation or suspect high values will be determined to be the most conservative representation of the results. The results of the radioactivity (pico-curies per gram) shall be reported in graphical and tabular form.

(2) The resulting beach background radiation level shall not be increased by more than 20 micro-roentgens/hour. This is to be determined by gamma radiation surveys (with the probe at waist level) taken both before and after the beach material placement.

(3) Gamma spectroscopy analysis for Radium 236 shall be performed at the beach site and at the potential borrow site. The placement of borrow material shall not allow the resulting composite radioactivity at the beach (determined by the gamma spectroscopy) to increase by more than 5 pico-curies/gram.

(4) Methodology for radioactivity content to be used for individual sample analysis shall be EPA Method 9310 for alpha and beta emissions.

(5) Methodology for gamma spectroscopy analysis shall be submitted by the Contractor and approved by the Contracting Officer.

(6) The Contractor shall provide report to the Contracting Officer/Contracting Officer Representative demonstrating their evaluation of the above criteria and provide all data including all radiation values taken.

c. Requirements for Environmental Contaminants

If deemed necessary by the Government based on a review of the borrow material for the duration of the project, the Contractor shall provide reports to the Government demonstrating their evaluation of the below criteria and provide all data including all chemical values determined. The data shall be provided in graphical and tabular format. It is anticipated that background level of contaminants for Brevard County beaches is essentially zero or below detection limits. Should contaminants be detected in borrow material the levels of contaminant in borrow material cannot exceed the mean levels existing at the beach placement area in samples taken as described below. These measurements will consist of the following chemical testing of the borrow material and elutriates:

(1) Total Recoverable Petroleum Hydrocarbons (TRPH), EPA 9071A or EPA 8440

(2) Heavy metals (As, Ba, Cd, Cr, Hg, Pb, Se), EPA Method 3051 (Use graphite furnace method for each metal except Hg which has own method)

(3) Volatile Halogenated Organics (C1-, Br-), EPA Method 8021A

(4) Polycyclic Aromatic Hydrocarbons (BTEX), EPA Method 8021A

(5) Elutriate Preparation shall be by the method provided in EPA/CE 81-1. Testing for all above contaminants shall be performed on elutriates.

If contaminant levels of the borrow material exceed the mean naturally occurring contaminant levels at the beach area, the site shall not be used as a borrow source. The measurements shall also fall within 2 standard deviation or suspect high values will be determined to be the most conservative representation of the results. Elutriate values shall be compared to State water quality standards to determine whether runoff will violate State standards.

d. Sampling Locations for Environmental Contaminants

Samples to be taken for the above requirements shall be taken every 1,000 feet as needed in the beach placement area, for representative beach quality samples, and in spots considered to be representative of every 50,000 cubic yards of the borrow material at the borrow site. Representative samples from all sites shall be taken in a pattern and locations approved by the Contracting Officer.

PART 3 EXECUTION

3.1 NOTIFICATION OF COAST GUARD

3.1.1 Navigation Aids

Navigation aids located within or near the areas required to be dredged will be removed, if necessary, by the U.S. Coast Guard in advance of dredging operations. The Contractor shall not remove, change the location of, obstruct, willfully damage, make fast to, or interfere with any aid to navigation.

3.1.2 Dredging Aids

The Contractor shall obtain approval from the U.S. Coast Guard for all buoys, dredging aid markers to be placed in the water, and dredging aid markers affixed with a light prior to the installation. Dredging aid markers and lights shall not be colored or placed in a manner that they will obstruct or be confused with navigation aids.

3.2 EXCAVATION

3.2.1 General

All excavation for beach fill shall be performed within the limits and depths of the three borrow areas shown on the drawings. The Space Coast Shoals Borrow Area 2 does not contain enough material to complete the entire project. It is the responsibility of the Contractor to determine the amount of material that will be excavated from this borrow area for completion of the work. Existing conditions are represented on the hydrographic survey and core boring logs appended to the end of Section 01000 GENERAL REQUIREMENTS. Excavation shall be performed in a uniform and continuous manner so as to avoid creating multiple holes, valleys, or ridges. Anchoring of the hopper dredge to excavate at a specific location shall not be performed. The Contractor shall dredge no deeper than the maximum elevation shown on the plans for each area of the three borrow

areas. The location of unsuitable material encountered within the three borrow areas shall be noted on the Contractor's Quality Control Report (copy appended to the end of Section 01451 CONTRACTOR QUALITY CONTROL). If the Contracting Officer determines the quality of beach fill is being adversely affected, that location shall be avoided in future passes of the dredge.

3.2.2 Magnetic Anomalies

A magnetometer survey was conducted in the three borrow sites. Magnetic anomalies were detected in all borrow areas. The location of these anomalies is shown on the drawings.

3.2.3 Turbidity

Excavation and filling operations shall be done in a manner that will minimize turbidity of the water at the excavation site and at the discharge from the fill area. If monitoring shows turbidity exceeds the background at the compliance stations by more than 29 NTU's, construction activities shall cease immediately and not resume until corrective measures have been taken and turbidity has returned to acceptable levels.

3.2.4 Dredge Location Control

The Contractor is required to have electronic positioning equipment that will locate the dredge when operating in the borrow area and/or the NDSRA. This equipment shall include real-time measurement of the water (tide) level. The Contractor is required to calibrate the equipment as required by the manufacturer or as required by the Contracting Officer. Proof of calibration shall be submitted to the Contracting Officer. Continuous locations of the dredge shall be made at all times during dredging and transporting operations. The reason the dredge is outside the borrow area limits shall be annotated on the position chart and on the Contractor's Quality Control Report for each occurrence. The location is to be by computed coordinates with a probable range error not to exceed 10 feet horizontal and furnished daily as part of the dredge reports, along with a real-time drawing of the track of the dredge in relation to the borrow area. The Contractor's method of location of the dredge shall be submitted for review. LORAN-C shall not be permitted for location control. The Contractor is also required to have a depth of dredging indicator for each dragarm and cutterhead. The instrument used shall indicate the depth of dredging at all times and draghead depth when the dredge is outside the borrow area limits. For hopper dredges, the instrument may be a graph type paper or electronic recorder. The reported elevation of dragarm and/or dredging shall be adjusted by the measured water level elevation and shall be reported relative to the datum indicated on the drawings (MLW) and shall have a probable range error not to exceed 0.5 feet vertical. The paper or depth record produced by this instrument shall be submitted daily with the daily dredge report. The reason the dredge is outside the borrow area limits shall be annotated on the depth record and the draghead depth shall be highlighted. Flagging or marking the winch cables are not an acceptable option to fulfill this instrument requirement. The indicators shall be in plain view of drag tenders, quality control and Government inspectors.

3.2.5 Submerged and Floating Pipeline

3.2.5.1 Submerged Pipeline

In the event the Contractor elects to submerge his pipeline, the pipeline

shall rest on the bottom, and the top of the submerged pipeline and any anchor securing the submerged pipeline shall be no higher than the project depth for any navigation channel in which the submerged pipeline is placed. Should the Contractor elect to use a pipeline material which is buoyant or semi-buoyant, such as PVC pipe or similar low density materials, the Contractor shall securely anchor the pipeline to prevent the pipeline from lifting off the bottom under any conditions. The Contractor shall make daily underwater inspections of the submerged pipeline to ensure buoyancy has not loosened the anchors. The Contractor shall remove all anchors when the submerged pipeline is removed. The location of the entire length of submerged pipeline shall be marked with signs, buoys, lights, and flags conforming to U.S. Coast Guard regulations.

3.2.5.2 Floating Pipeline

Should the Contractor's pipeline not rest on the bottom, it will be considered a floating pipeline and shall be visible on the surface and clearly marked. In no case will the Contractor's pipeline be allowed to fluctuate between the surface and the bottom, or lie partly submerged. Lights shall be installed on the floating pipeline as required in paragraph SIGNAL LIGHTS of Section 00800 SPECIAL CONTRACT REQUIREMENTS. The lights shall be supported either by buoys or by temporary piling, provided by the Contractor and approved by the Contracting Officer. Where the pipeline does not cross a navigable channel, the flashing yellow all-around lights shall be spaced not over 200 feet apart, unless closer spacing is required by U.S. Coast Guard personnel, in which case the requirements of the U.S. Coast Guard shall govern, at no additional cost to the Government.

3.2.6 Deduction for Nonconforming Work

Beach fill that is obtained from unauthorized areas will not be paid for under this contract. Excavation in such area(s) is a violation of State of Florida Permits for this work. The Government will perform pre-dredge and after-dredge surveys in the borrow areas. If it is determined that dredging has been performed outside the borrow area(s) or below the limiting elevation within the borrow area(s), the quantity of the material dredged from these areas will be computed and subtracted directly from the pay quantity of material placed on the beach. Burial of non-beach-compatible material within the beach fill is not permitted. Fill material placed on the beach from authorized alternate sand sources not conforming with the requirements specified in subparagraph "Alternate Sand Sources" of paragraph CHARACTER OF MATERIALS above, shall be quantified by the Government and subtracted directly from the pay quantity of material placed on the beach, and the Contractor shall expose, remove the nonconforming alternate material, dispose of same in an approved location and manner, and shall replace the material with conforming material, at no additional cost to the Government.

3.3 TRANSPORT OF EXCAVATED MATERIALS

The method of transporting the fill from the offshore borrow area(s) to the fill area shall be approved by the Contracting Officer's Representative.

3.3.1 Hopper Dredge

A hopper dredge or barge with pump out capabilities may be used for transport of the excavated materials. Overflow at the borrow site during loading will be permitted only to the extent that turbidity and water quality standards required by Section 01410 ENVIRONMENT PROTECTION are met.

The Contractor shall limit the loading to partial loads, if necessary, to meet turbidity and water quality requirements permitted at the borrow site. No overflow or spillout will be permitted during transport to the discharge site. Failure to repair leaks or change the method of operations which has resulted in spillage that exceeds turbidity and water quality standards during load or any overflow during transport to the discharge site will require suspension of dredging operation. The prevention of overflow or spillage shall be a prerequisite to the resumption of dredging.

3.3.2 Pipeline Dredge

A pipeline dredge or hydraulic unloader may be used to transport material to the project site. Offshore dumping rehandling of dredged material shall only be allowed at the NDSRA as indicated on the drawings. The Contractor shall maintain a tight discharge pipeline at all times. The joints shall be so constructed as to preclude spillage and leakage. The development of a leak shall be promptly repaired and the dredge shall be shut down until repairs are completed. Failure to repair leaks or change the method of operations, which is resulting in the spillage that exceeds turbidity and water quality standards, will result in suspension of dredging operations. If a dredging technique is used for this project that requires anchoring, no anchoring shall be allowed outside of the approved work areas. If pilings are used for anchorage at the beach fill site, the pilings shall be well marked and removed in their entirety upon completion of the Contractor's operation.

3.3.3 Nearshore Disposal and Sand Rehandling Area (NDSRA)

An area in the nearshore of the beach project has been set aside for the Contractor to temporarily stockpile material. This area is shown on the drawings. The Contractor is not required to use the NDSRA. However, if the NDSRA is utilized for construction of the work, the Contractor shall provide surveys prior to, subsequent to, and at 45-day intervals during activity within the rehandling area.

3.4 BEACH FILL

3.4.1 General

All beach fill sand excavated from the borrow area shall be transported to and deposited on the beach within the lines, grades, and cross section shown on the drawings except as may be modified by the provisions of subparagraph 3.4.2.b below. Except as specified in subparagraph "Dressing for Payment" below, the Contractor shall maintain and protect the fill in a satisfactory condition at all times until acceptance of the work. Any fill sand which is lost in transit or permitted to flow into the offshore waters or onto the upland from the point the sand is discharged on the beach will not be subject to payment. The fill shall be free of clay lenses, rock or silt pockets. Any such material remaining in the fill shall be removed and disposed of by the Contractor as approved by the Contracting Officer. Any existing signs, buoys or other structures within the work lines shall be protected and/or removed and later replaced by the Contractor as directed. The Contractor shall provide sand ramp walkways across the beach pipeline at intervals not greater than 300 feet to correspond to the locations of existing public beach access walkways.

3.4.2 Construction

a. Prior to placement of fill, the Contractor shall remove from the

site of the work all snags, driftwood, and similar debris lying within the foundation limits of the beach fill section. If any derelict structures are encountered, including groins, the Contractor shall remove the debris from the site. All materials removed shall be disposed of in areas provided by and at the expense of the Contractor and approved by the Contracting Officer. Any groins within the fill area shall be adequately ramped over by the Contractor to prevent damage thereto by the Contractor's equipment. Grading and other construction equipment will not be permitted outside the easement lines shown on the drawings except for designated ingress and egress to and from the site. Mobile equipment of any type operating within 50 feet of any seawall, building, groins, or other structure as determined by the Contracting Officer shall be rubber wheeled. Tracked equipment shall not be permitted to operate within 50 feet of any seawall, building, groin, or other structure as determined by the Contracting Officer. Hand tools may be required in these areas.

b. The excavated material shall be placed and brought to rest on the beach to the lines, grades, and cross section indicated on the drawings, unless otherwise provided for herein or directed by the Contracting Officer. The Contractor shall not stockpile pipe or any other equipment or debris on private property which is west (landward) of the landward limit of work. Pipe shall be placed parallel to shore and landward as far as possible without compromising the dune system. The beach is subject to changes and the elevations on the beach at the time the work is done may vary from the elevations shown on the drawings. The Contracting Officer reserves the right to vary the width and grade of the berm from the lines and grades shown on the plans in order to establish a uniform beach for the entire length of the project. The beach fill cross sections shown on the drawings are for the purpose of estimating the theoretical amount of fill needed and will be used by the Contracting Officer in making any change in the lines and grades. The Contractor will not be required to dress the fill below the mean high water to the slopes shown but will be required to do the dressing specified in subparagraph "Dressing for Payment" below.

c. The Contractor shall maintain a tight discharge pipeline for the pumpout operations at all times. The joints shall be so constructed as to preclude spillage and leakage. The development of a leak shall be promptly repaired or the pumpout operations shall be shut down until complete repair has been made to the satisfaction of the Contracting Officer. The Contractor shall be required to maintain barricades, warning signals, and flagmen to insure public safety in the vicinity of the pipe discharge. Any damages to private or public property resulting from the Contractor's operations shall be repaired by the Contractor at his expense.

d. Grade stakes and any other stakes for any purpose shall be made of steel pipe that can and will be removed intact after filling to cross sections accepted by or as directed by the Contracting Officer. All stakes shall have sufficient length above grade so they may not be accidentally covered by fill. The Contractor shall consecutively number each piece of pipe used for grade stakes, shall clearly mark that number upon the pipe, and shall record the location of each numbered pipe in a grade stake log. The removal of each numbered pipe shall be recorded in the grade stake log at the time of the pipe/stake removal. At the request of the Contracting Officer or the Contracting Officer's Representative, all of the grade stake pipes shall be

displayed after their removal to demonstrate those pipes that have been removed. All pipes used for grade stakes placed within the limits of the beach fill work shall be numbered and shall be recorded in the log. It is the Contractor's responsibility to track, locate, and completely remove all grade stakes in their entirety to the satisfaction of the Contracting Officer's Representative.

e. Temporary longitudinal dikes and spreader and pocket pipe shall be used to prevent gullying and erosion of the beach and fill and to retain the fill on the beach and within the limits of the fill cross section. As the work progresses, dikes or mounds shall be constructed along the beach as necessary to direct the pipeline discharge longitudinally along the beach to avoid transverse gullying directly from the discharge point to the ocean, and to build the new berm to design grade. Longitudinal dikes shall initially be 500 feet long in advance of filling operations. They may need to be lengthened to meet water quality standards. Shorter lengths may be subsequently used if approved by the Contracting Officer's Representative. More than one series of longitudinal dikes may be required to meet water quality standards, to build to the required lines and grades, and to keep material within the toe-of-fill. The Contractor will not be held responsible for erosion caused by waves after the beach fill has been satisfactorily placed and accepted. No undrained pockets shall be left in any fill during or upon completion of the work. The Contractor shall not permit wastewater to flow landward of the fill section or water to pond between the fill and upland. Groins, bulkheads, revetments, piers, dune walkovers, and other structures within the fill section shall be protected by the Contractor to prevent damage thereof by the Contractor's operations. Any damages assessed as a result of any of the above items shall be at the Contractor's expense.

f. Mechanical operations may be needed to place material to the required lines and grades. The Contractor shall address the placement methods(s) for each Acceptance Section in the Work Plan. Stockpiling, additional longitudinal dikes, and/or other special handling may be needed. It is the Contractor's responsibility to place material to the specified lines and grades within the fill crossed section.

g. Any hydraulic fill that is rehandled or moved and placed in its final position by methods other than hydraulic shall be placed in horizontal layers not exceeding three (3) feet in thickness. Compaction of the layers will not be required.

h. The approximate locations of existing storm water outfalls within the beach fill work area are indicated on the drawings. Beach fill shall be placed and graded adjacent to the outfalls with a slope not steeper than 1 vertical on 10 horizontal from the berm to the top elevation of the outfalls' concrete structure.

3.4.2.1 Sand Flooding

If the sand is placed in a state that is not completely saturated by hydraulic placement, the Contractor must saturate the dry placed sand to effect consolidation equal to hydraulic placement. No more than 100 cubic yards of sand at a time shall be placed on the beach without saturating. Enough water must be used to completely saturate the sand, not less than 100 gallons of water shall be available for each cubic yard of sand placement. Runoff water shall be controlled so as not to run off the project limits on the upland side and not to run directly to the ocean

forming gullies, eroding the fill sand.

3.4.3 Dressing for Payment

Immediately following placement of the new beach fill the Contractor shall grade, level and dress the beach fill to meet the required elevations and dimensions indicated on the drawings. The dressing for payment shall include the removal of humps, depressions, undrained pockets, excavated material at locations of swales for drainage culverts, and vehicle access ramps, etc., prior to final pay survey being taken of an area of Acceptance Section.

3.4.4 Dressing for Final Acceptance

Immediately upon the completion of beach fill placement and removal of equipment and materials from the beach fill area, the final dressing shall be accomplished by the Contractor for final acceptance. This final dressing is a requirement as part of the post-construction cleanup and prior to the sand compaction measurements required by Section 01410 ENVIRONMENT PROTECTION of the contract. The bank caused by wave forces shall be graded down to slope not steeper than 1 vertical to 10 horizontal. Grade stakes shall be removed intact and any excavation required to remove the stakes shall be backfilled.

3.4.5 Tolerances

Final grade (F.G.) shall be within tolerances of plus or minus five-tenths (0.5) of a foot of beach fill grade line. (Refer to Beach Fill Tolerance figure appended to the end of this Section.) Tolerance shall extend entire berm and slope to intersection of slope and pre-construction surveyed condition. ~~Contractor may stockpile beach fill~~Fill placed above the 0.5 foot tolerance up-slope of the slough zone~~, to~~may compensate for material expected to be removed by wave action; but smooth slopes shall be maintained. Berm width will vary as directed by the Contracting Officer. Slope shaping shall be accomplished by grading fill into water or as directed by the Contracting Officer. Specifically stockpiling of fill up-slope of the slough zone shall not be permitted.

3.4.6 Misplaced Materials

If any material is deposited elsewhere than in places designated or approved, the Contractor may be required to remove such misplaced material and redeposit it where directed at his expense.

3.4.7 Work Area

The construction easements and borrow area limits available to the Contractor for accomplishing the work are shown on the drawings. At the fill site, the Contractor may only operate within the work areas shown on the drawings. The Contractor shall exclude the public from the work areas in the immediate vicinity of his dredging, transporting, and disposal operations. The Contractor shall prevent public access to the discharge end of his pipeline. The Contractor shall erect, maintain, and move as necessary, a restrictive barrier around the discharge of the hydraulic pipeline used for beach disposal; i.e., similar or equal to orange polypropylene geogrid safety fencing. The barrier shall be constructed so as to prevent the public from approaching the discharge from any direction closer than 40 feet. The Contractor shall post signs in a conspicuous manner stating "DANGER - HIGH PRESSURE DISCHARGE FROM DREDGE". Enforcement

shall be the Contractor's responsibility at no additional cost to the Government. The enforcement shall be coordinated with local enforcement agencies, and will be subject to approval of the Contracting Officer. Additionally, the Contractor shall place a safety person at the discharge end of the disposal pipeline. The safety person shall be present at all times during discharge operations and will maintain radio communication between the dredge and the disposal operation.

3.4.8 Construction Access

Construction access is provided as shown on the contract drawings. Procurement of additional access routes for ingress and egress to the construction area shall be obtained by and at the expense of the Contractor and shall be approved by the Contracting Officer. At all access sites to be utilized, the Contractor shall:

a. Photo-document the condition of the access location prior to disrupting the site.

b. Limit access width through existing vegetation to 20 feet or less.

c. Replace any fencing, signage or curbing disturbed by the Contractor's activities; and,

d. Restore and revegetate the access route with native dune plants subject to the approval of the Contracting Officer. Revegetation of access and staging areas shall be with sod (non-dune areas) or viable plant units (dune areas) at 18-inch maximum spacing with species and diversity equivalent to preconstruction conditions. Revegetation shall include a survival warranty of 90 percent of the plant material for 90 days. Vegetation shall be installed with fertilization and irrigation, or with initial irrigation, fertilization and approved water-absorbent polymeric gels, at no additional expense to the Government. Shrubs and trees shall be replaced to preconstruction conditions per the requirements of Section 01410 ENVIRONMENT PROTECTION.

3.5 NOISE CONTROL

3.5.1 Hauling and Excavating Equipment Other Than Dredges and Booster Pumps

All hauling and excavating equipment, other than dredges and booster pumps, used on this work shall be equipped with satisfactory mufflers or other noise abatement devices. The Contractor shall conduct his operations so as to comply with all Federal, State, and local laws pertaining to noise.

a. Sound pressure measurements shall be made with a sound level meter and shall be reported to the Contracting Officer under provisions for the Contractor Quality Control.

b. Sound pressure measurements shall be made at distances of 50 feet, 100 feet, 300 feet, and 500 feet from each major piece of equipment such as draglines, dump trucks, dewatering pumps, pneumatic drills, bulldozers, etc., at locations approved by the Contracting Officer. The measurements shall be made by personnel qualified to make such measurements and whose credentials have been verified by the Contracting Officer. The measurements shall be taken during operations every 4 weeks. Temperature, atmospheric pressure, and general weather conditions shall also be recorded with the measurements.

3.5.2 Dredges, Bulk Carriers, and Booster Pumps

Dredges and booster pumps used on this work shall be equipped with satisfactory mufflers or other sound abatement devices to reduce engine noise. The Contractor shall conduct his operations so as to comply with all Federal, State, and local laws pertaining to noise. The use of horns, the use of whistle signals, and handling of dredge pipelines shall be held to the minimum necessary in order to insure as quiet an operation as possible. Sound pressure measurements shall be made by the Contractor at 50-foot, 100-foot, 200-foot, and 300-foot distances from the (1) dredge, (2) booster pumps, if any, and (3) dredge pipeline at locations approved by the Contracting Officer. The measurements shall be made by personnel qualified to make such measurements and whose credentials have been verified by the Contracting Officer. These measurements shall be taken during pumping operations every 4 weeks. The sound pressure measurements and type of material being dredged at the time measurements are taken shall be reported to the Contracting Officer. Sound pressure measurements shall be made twice at the direction of the Contracting Officer during the first 4 weeks of use of whistle signals and drill barges in operation at 50-foot, 100-foot, 200-foot, and 300-foot distances. Temperature, atmospheric pressure and general weather conditions shall also be recorded with the measurements. The sound pressure measurements shall be reported to the Contracting Officer under provisions for the Contractor Quality Control.

3.6 QUALITY CONTROL

The Contractor shall establish and maintain quality control for operations under this section to assure compliance with contract requirements and maintain records of his quality control for materials, equipment, and construction operations, including but not limited to the following:

3.6.1 Preparatory Inspection

(To be conducted prior to commencing work.)

a. Check location of borrow area and conditions of beach areas to be filled.

b. Discuss plan of action for dredging, transporting, and placing fill on beach.

c. See that all equipment is approved and is in satisfactory working condition.

d. Check safety requirements and, particularly, public safety.

e. Check the beach site for structures that could be susceptible to damage or which could have further damage caused by the Contractor's activity.

3.6.2 Initial Inspection

(To be conducted after a representative sample of the work is complete.)

a. Check for proper lines, grades, and elevations.

b. See that diking and fill discharge is satisfactory.

c. Check grades and slopes of fill placement.

d. Check finished area for proper dressing and elimination of undrained pockets and abrupt humps.

e. Check any adjacent structures to search for damage by Contractor's equipment.

3.6.3 Follow-up Inspection

(To be conducted daily to assure compliance with results of initial inspection.)

a. Check items mentioned in preparatory and initial inspection.

b. Damage or defects.

A copy of these records, as well as results of corrective action taken, shall be furnished the Government as directed by the Contracting Officer.

3.7 QUALITY CONTROL SAMPLING FOR ALTERNATE SAND SOURCE

For placement of fill material from an alternate sand source other than those provided by the Government, the following quality control sampling will be required to establish compliance with the physical specifications provided. The Contractor shall perform sampling that includes no less than the sample collection described in subparagraphs "Sampling at the Sand Source" and "Sampling at the Project Site" below. The Contractor shall conduct all testing in a location accessible to Government inspectors. The Contractor shall include the sampling and testing procedure in his Contractor's Quality Control Plan for Government review and acceptance within 10 days of Notice of Award. The Quality Control Plan shall include the name, address, and point of contact for the Government-approved testing laboratory to be used for all grain size analysis. The location of the testing facility to be used for this contract shall also be included in the Quality Control Plan. Gradation test results shall be turned in daily with the daily quality control reports. Each sample collected shall be approximately one pound in weight and obtained from a single location. All laboratory test results shall be reported to the Government.

3.7.1 Grain Size Reporting

A Government-approved testing laboratory shall perform laboratory testing in accordance with ASTM D 422. The grain size distribution shall be based upon U.S. Standard sieve sizes 1", 1/2", 3/8", 4, 10, 14, 20, 40, 60, 100, 140, 200, and 230. All gradation curves shall be submitted on ENG Form 2087, GRADATION CURVES (sample appended to the end of this Section). Each submitted ENG Form 2087 shall have the maximum and minimum gradation limits shown on the form. All title information shall be filled out with project name, date, sample number, location sample obtained, unified soil classification, percent silt passing the No. 200 sieve (0.074 mm), percent silt passing the No. 230 sieve (0.063 mm), and visual estimate of percent composition for each mineralogical constituent (i.e., quartz, shell, heavy minerals, etc.). A tabulation of the laboratory results of the cumulative percent retained on each sieve by weight shall be provided both in hard copy and digitally in Excel spreadsheet format with each gradation curve. Samples from the sand source shall be numbered consecutively. Samples from the project site shall be identified with station and range location.

3.7.2 Sampling at the Sand Source

Sand samples for laboratory testing shall be collected at the sand source at the rate of one sample for every 2,000 cubic yards of sand to be transported. Sampling and testing shall be completed before the sand is transported to the project site, and shall be representative of the sand being delivered to the project.

3.7.3 Sampling at the Project Site

Sand samples for laboratory testing shall be collected at the project site. Sand samples shall represent the fill material only, avoiding existing beach sand below the project fill. Sand samples shall be collected at the rate of one sample representing 500 cubic yards of sand delivered. The samples shall be collected on a regular sampling grid and the location recorded on the gradation curve. The plan of beach sampling shall be submitted with the Contractor's Quality Control Plan. All sample collection shall be distributed temporally over the entire filling operation. Half of the samples shall be collected during filling, when the fill is approximately less than half of the final grade. The second half shall not be collected from the surface, but 6 inches below the surface. Before the survey for final payment and acceptance by the Government, all sample laboratory analyses shall be completed and submitted to the Government. The survey will verify the quantity of sand delivered.

3.8 PERMITS AND RESPONSIBILITIES

The Contractor's attention is directed to the Clause PERMITS AND RESPONSIBILITIES of Section 00700 CONTRACT CLAUSES and paragraph PERMITS AND AUTHORIZATIONS of Section 01410 ENVIRONMENT PROTECTION.

3.9 PROTECTION OF EXISTING STRUCTURES FROM CONSTRUCTION ACTIVITIES

3.9.1 Protection Program

The Contractor shall implement a protection program that will protect existing structures from damages that result from construction equipment operations and vibrations. The protection program shall consist of a Pre-Construction Structural Survey, a Vibration Control Plan, a Vibration Control Program, and a Post-Construction Survey.

Existing structures adjacent to the beach fill work area are either residential, commercial, or public properties. Structures are comprised of buildings, patios, slabs, swimming pools, pool decks, bulkheads, seawalls, wooden walkways, etc. The purpose of the program is to avoid damages and potential claims that allege damages were caused by construction activities.

3.9.2 Contractor's Responsibility

The Contractor shall assume all responsibility for damages to existing structures within and bordering the project boundaries that may be attributed to project activities. The Contractor shall also be responsible for any work stoppage that results from monitoring, inspection, damages, damage claims and/or damage avoidance activities.

3.9.3 Pre-Construction Structural Survey

The Contractor shall inspect existing structures within 200 feet from the beach fill limit as to their potential susceptibility to vibration damage from construction equipment induced ground vibration. Visible structural

and/or cosmetic damage to buildings, exterior walls, foundations, decks, pools, bulkheads, seawalls, etc., shall be documented by photographs, sketches, and field notes. Copies of all documentation shall be provided to the Contracting Officer before commencement of any work on shore involving heavy equipment capable to produce vibrations.

a. Factors to consider in determining potential susceptibility shall include but not be limited to: foundation design; foundation conditions; soils testing data; changes in structural loads and local water levels due to beach fill placement; structural condition including construction materials, past damage history and existing stresses; magnitude, frequency, and duration of predicted vibrations from construction equipment; and, distance from fill placement.

b. The Contractor shall inspect all existing structures that are determined to be vibration sensitive. Any damage found shall be documented thoroughly by photographs (supplemented with video as necessary), sketches of visible structural and/or cosmetic damage, and field notes. Photographs shall be at least 3-1/2" x 5" and shall provide a detailed visual explanation of the damage. Include a reference scale in each close-up photograph. Sketches shall show the general damage location and extent. All inspection items shall be indexed and cross referenced and shall use the stationing and locations shown on the contract drawings. Include hotel/motel names and addresses where applicable. Structural damage shall be additionally documented by measuring crack or damage size, width, and length. Every effort shall be made to inspect and document the condition of the building's interior where the building has been determined to be extremely susceptible to vibration damage. Structures determined not to be susceptible to vibration damage shall be noted as such.

3.9.4 Vibration Control Program

The Contractor shall use the results of the Pre-Construction Survey to develop the Vibration Control Plan. The Vibration Control Program shall use the plan to monitor and adjust daily mobilization, demobilization, and fill placement operations, as necessary. The program shall use the appropriate tolerable vibrations to monitor each structure that has been determined to be susceptible to vibration damage. Should ground vibrations equal or exceed the predetermined maximum vibration level(s), construction operations shall be halted and corrective measures taken in accordance with the approved Vibration Control Plan.

a. The minimum safe working distance that vibration producing equipment may operate from each vibration sensitive structure shall be documented in the Vibration Control Plan.

b. The maximum allowable ground vibration level that is permissible without causing threshold damage to each vibration sensitive structure shall be documented in the Vibration Control Plan. Threshold damage is defined as the occurrence of cosmetic damage.

c. Each seismograph shall have the capability to measure peak particle velocity and frequency and shall be equipped with an alarm system to alert the on-site Vibration Control Specialist that ground vibrations are approaching the maximum tolerable ground vibration level.

3.9.5 Vibration Control Specialist

The Contractor's personnel responsible for implementation of the Vibration Control Plan is hereafter called Vibration Control Specialist. The Vibration Control Specialist shall be on the site during mobilization, demobilization, and operation of fill placement equipment. The pre-approved alternate may serve in the event of the Vibration Control Specialist's absence. Periods of absence shall not exceed one week at any one time and not more than 15 workdays during a calendar year. The requirements for the alternate are the same as for the designated Vibration Control Specialist.

3.9.6 Post-Construction Structural Survey

After completion of work, the Contractor shall conduct a post-construction inspection of the structures previously inspected under the pre-construction structural survey. Documentation procedures shall be identical to those performed under the pre-construction inspection. Changes or deviations from the pre-construction inspection conditions in any structure shall be identified and described in the inspection documentation. Copies of all documentation shall be provided to the Contracting Officer not later than 15 calendar days after completion of the work on each segment.

3.9.7 Qualifications for Structural Inspection/Evaluation and Vibration Control Program Personnel

The Contractor shall provide personnel for structural inspections and vibration monitoring which meet at least the following minimum qualifications outlined below. The Contractor shall provide documentation verifying the qualifications to the Contracting Officer for approval within 7 calendar days after the date of Notice of Award. The Contracting Officer reserves the right to reject any individual(s) not meeting the qualifications specified and to request resubmittal of other personnel at no cost to the Government.

3.9.7.1 Structural Inspection/Evaluation Personnel

Structural inspections shall be performed by structural engineers registered in the State of Florida with a minimum of 3 years of demonstrated experience in structural condition inspections.

3.9.7.2 Vibration Monitoring Personnel, including Vibration Control Specialist

Personnel responsible for the Vibration Control Program and Plan shall be registered in the State of Florida with a background in geotechnical and structural engineering and shall have a minimum of 3 years of demonstrated experience in vibration monitoring and related work.

3.9.7.3 Approval of New Personnel

The Contractor shall obtain approval of new personnel that replace personnel that were approved as part of any submitted Vibration Control Plan. Approval requests shall include the same requirements as specified for the original personnel.

3.10 DAILY REPORT OF OPERATIONS

See APPENDIX A at the end of this Section (4 pages).

3.11 ACCEPTABLE GRADATION RANGE

See APPENDIX B at the end of this Section (1 page).

3.12 SAMPLE - ENG FORM 2087, GRADATION CURVES

See APPENDIX C at the end of this Section (1 page).

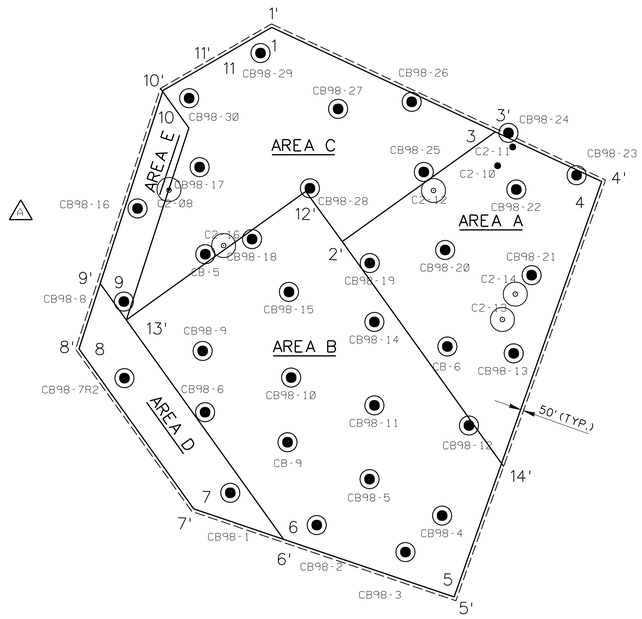
3.13 SAMPLE - CONSTRUCTION AND GRADE STAKES RECOVERY PLAN

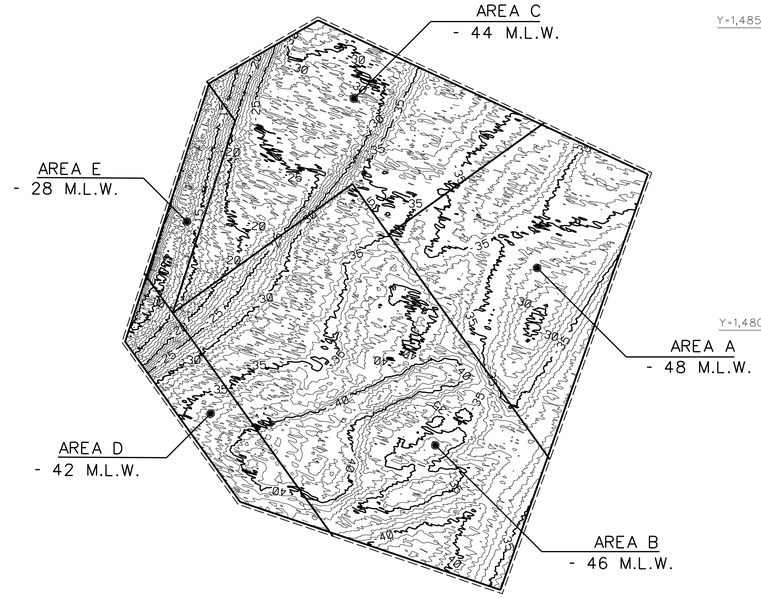
See APPENDIX D at the end of this Section (2 pages).

3.14 BEACH FILL TOLERANCE FIGURE

See APPENDIX E at the end of this Section (1 page).

-- End of Section --





MAGNETIC ANOMALIES

NOTATION	X	Y	OBJECTS
C2-01	667,673	1,487,365	SPACE DEBRIS, CYLINDRICAL
			OBJECT 3-5' DIA X 25'
C2-02	670,904	1,485,868	SPACE DEBRIS, CYLINDRICAL
			OBJECT 3' DIA X 34'
C2-08	675,523	1,482,444	SPACE DEBRIS, CYLINDRICAL
			OBJECT 4' BELOW SURFACE
C2-10	680,958	1,482,837	CABLE, 3.5' BELOW SURFACE
C2-11	681,207	1,483,147	SCATTERED REMAINS OF
			SHRIMP BOAT
C2-17	670,297	1,486,107	TWO CYLINDRICAL
			OBJECTS, 3' DIA X 8' AND 30' X ?'
C2-12	679,897	1,482,425	SPACE DEBRIS
C2-13	681,036	1,480,292	
C2-14	681,250	1,480,712	
C2-16	676,428	1,481,515	

CULTURAL RESOURCES EXCLUSION AREAS

POINT	X	Y
C2-01	667,673	1,487,365
C2-02	670,904	1,485,868
C2-08	675,523	1,482,444
C2-12	679,897	1,482,425
C2-13	681,036	1,480,292
C2-14	681,250	1,480,712
C2-16	676,428	1,481,515
C2-17	670,297	1,486,107

NOTE: CONTRACTOR SHALL USE A 200-FOOT EXCLUSION ZONE AROUND CULTURAL RESOURCES.

LIMIT OF DREDGING

POINT	X	Y
1	677,220.5	1,485,122.3
2	678,364.4	1,481,563.8
3	680,919.1	1,483,395.2
4	682,677.7	1,482,573.9
5	680,236.8	1,475,701.2
6	677,416.7	1,476,655.1
7	675,930.8	1,477,157.7
8	674,032.4	1,479,805.9
9	674,383.8	1,480,886.0
10	675,422.8	1,484,079.4
11	676,226.8	1,484,545.8

PERMITTED BORDER COORDINATES

POINT	X	Y
1'	677,218.0	1,485,178.6
2'	678,387.7	1,481,580.5
3'	680,965.7	1,483,428.6
4'	682,740.0	1,482,600.0
5'	680,267.4	1,475,638.1
6'	677,466.6	1,476,585.4
7'	675,899.5	1,477,115.5
8'	673,977.0	1,479,797.3
9'	674,347.6	1,480,936.4
10'	675,381.2	1,484,113.1
11'	676,222.3	1,484,601.0
12'	677,790.7	1,482,413.3
13'	674,817.0	1,480,281.6
14'	681,055.9	1,477,858.3
15'	675,850.6	1,483,458.4

BORROW AREA NO. 2 DESIGN

BORROW AREA NO. 2 BATHYMETRIC CONTOUR

SURVEY NOTES:

1. REFER TO SURVEY NO.: 00-263.
2. ELEVATIONS ARE IN FEET AND TENTHS AND REFER TO MEAN LOW LOW WATER WHICH IS 1.9 FT. BELOW N.G.V.D.
3. PLANE COORDINATES ARE BASED ON THE TRANSVERSE MERCATOR PROJECTION FOR FLORIDA EAST ZONE (NAD 27).
4. ALL AZIMUTHS ARE GRID AND ARE RECKONED CLOCKWISE FROM (0) SOUTH.
5. THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING GENERAL CONDITIONS EXISTING AT THAT TIME.
6. SURVEY DATA FOR BORROW AREA 2 WAS OBTAINED MAY 29 & 30, 2001.

LEGEND

- PERMITTED BORDER
- DREDGING BORDER
- CORE BORING
- BATHYMETRIC CONTOUR
- C2-08 MAGNETIC ANOMALIES AND NOTATIONS
- C2-12 CULTURAL RESOURCE WITH EXCLUSION ZONE

NOTES:

1. THE BATHYMETRIC CONTOURS WERE COMPUTER GENERATED FROM SURVEY DATA.

GRAPHIC SCALE

1000' 0 1000' 2000'

US Army Corps of Engineers
Jacksonville District

SAFETY ON THIS JOB DEPENDS ON YOU

No.	Symbol	Zone	Description	Approved
3	△3	NAD 83	REVISED TO ACCOMPANY AMENDMENT NO. 0001	

DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT, CORPS OF ENGINEERS
JACKSONVILLE, FLORIDA

Designed by: B.N.H.
Drawn by: R.L.H.
Cad by:
Inv. No.
Dated: MARCH 1998
Scale: AS SHOWN
Plot date:
Plot scale:

D.O.FILE NO. 24-38,182

File name: BYSNBA07.DGN
Reference files: 255263.DGN

SHORE PROTECTION PROJECT
BREVARD COUNTY, FLORIDA

BEACH NOURISHMENT

PHASE 2 (SOUTH REACH) - BORROW AREAS
CANAVERAL SHOALS BORROW AREA NO. 2

DRAWING NO.
4/7